

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

GLEANINGS IN

BEE CULTURE

A JOURNAL DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS.

ILLUSTRATED
SEMI-MONTHLY

Published by THE A. I. ROOT CO.
\$1.00 PER YEAR MEDINA, OHIO

VOL. XXVIII.

APR. 1, 1900.

No. 7.



HONEY POULTICES of honey and flour spread on a linen rag are recommended in *British Bee Journal* for boils, carbuncles, etc., and for injured bones. In my own family, poultices of honey and castile soap have done good service.

D. W. HEISE, speaking of cleaning out hives in spring, makes this point: "Neither should we forget that the less propolis we leave in the brood-chamber the less we are likely to have in the sections." (*Canadian Bee Journal*, 197.)

BE SURE to plant at least three hybrid perpetual roses; say Alfred Colomb for red; Mrs. John Laing, pink; Mad. Geo. Bruant, white. The last is not good full-blown, but the bud is fine and the foliage unusually so. It's a Japanese rose.

THE WRITER mentioned on page 207, who thinks brood-rearing goes on all right 28° below Doolittle's mark, is probably talking about temperature outside the cluster, and Doolittle means *in* the cluster. If eggs would hatch at 64°, wouldn't they roast at 92°? [Just so.—ED.]

AS A CONTRIBUTION to the subject L. Stachelhausen has treated so well, p. 213, I may say that I know bees will forage at five days old if forced to it. I shut an imported queen in a hive with frames of ripe brood, but not a bee. Five days later I saw young bees carrying in pollen.

"THE MAJORITY of the queen-cells are built off from a worker cell after cutting it down," p. 221. In this locality that's the case when the queen is taken away, but I think never when bees prepare for swarming. In that case the bottom of the cell is like the left end of that stick on p. 221.

SPEAKING of Holy Land bees, the editor of *Australasian Bee-keeper* says: "For comb-honey producers they are not suitable, for the capping of the comb has a very greasy appearance." I believe that has been the general verdict. If correct, greasy sections are due to bees and not conditions.

THE BOTTOM-BOARDS of my "barns" leave an inch space under the hives. That's not enough for winter. Some of my bottom-boards are 1½ and some 2 inches deep. The deeper are much better. [Two inches deep may be better; but a supply manufacturer would hardly dare jump from the regulation ¾-inch space under the frames to more than five times that.—ED.]

"IN ANY CASE you should not use frames spaced less than 1½ in.," says *British Bee Journal*. I sometimes wonder whether that may not be better than 1¾. [A few years ago there seemed to be quite an array of testimony against 1½-inch spacing, and in favor of 1¾; and if any thing the indications seemed to be that less than 1¾ would be better than more. The arguments pro and con are all summed up under the head of "Spacing of Frames," in the A B C book.—ED.]

NOW COMES X. Levrier, who, in a series of articles running through several numbers of *Revue Eclectique d'Apiculteur* insists that bees are not needed for fertilization of flowers—Lubbock and Darwin are in error, and seed matures perfectly when insects are excluded by covering. Where are we at? [We are all right; so are Lubbock and Darwin; but X. Levrier is all wrong—that is, if we can believe a great mass of evidence that seems to be almost entirely one-sided in favor of the bees.—ED.]

BEE-PARALYSIS is reported in *The Australasian Bee-keeper* as cured by a number of bee-keepers as follows: To a pound of honey add ½ ounce of a mixture of one part sulphurous acid with four parts tincture of podophyllin. Heat to 90°, and daily spray combs, bees and all. Three to five days' spraying cures. [I almost wonder, doctor, that you did not tell us something about podophyllin. If I mistake not, it is a laxative, and the purpose of giving it to the bees is to enable them to clean out the intestines, which seem to be clogged by this peculiar disease, bee-paralysis. There may be something in it.—ED.]

CANADA has some strong advocates for wintering on full combs of honey with few or no empty cells inside the brood-nest. One advantage claimed is that, with the cells in the cluster filled with honey, the queen does

not lay prematurely in winter or early spring. [It has been our practice for a number of years to give our colonies enough feed in the fall so they do not have room enough for even a winter nest. In other words, we compel them to have solid slabs of sealed stores. Although this policy has been questioned somewhat, yet certainly the proof of the pudding is in the eating; for if any one can show better results in wintering outdoors (and I do not mean to brag), I wish he would show his hand.—ED.]

No, MR. EDITOR, I'm not sure that the preference for the one-swarm plan has mainly died away; but there seem to be few advocating it, and there seems to be a general yearning after a non-swarmling plan. And I do know that here, and I think wherever there is no heavy late flow, a colony and its swarm do not store as much as the colony that doesn't swarm. [But it does not seem to me that the one-swarm plan has died away at all. If I am not mistaken, there are more bee-books and more writers advocating it than there were a few years ago. What are the books or who are the writers who have gone back on the plan? I do not throw this out as a challenge. To you, doctor, but I simply desire information.—ED.]

"IT COST ME several years of close application to spell the old way," says Rambler, page 210. That's about as strong an argument as I ever saw against the old way. A man with Rambler's heart ought to be willing to suffer a little inconvenience rather than have all future generations work as he and I did to learn to spell. We may just as well own up that the objection to Bro. York's spelling is prejudice pure and simple. His way of spelling "through" sends a chill *thru* me. But an Englishman has the same chill when he meets "honor" without a "u" in it, and will not read a book, much less buy it, if that "u" is omitted, according to a writer in *Sunday School Times*. [Now look here, doctor. I have promised our readers that we would not say any thing more about reformed spelling, and now you have just "gone and done it." If this stirs up a hornet's nest I will turn the "hornets" loose on you.—ED.]

NOW IT'S HEISE that's rasting with Doolittle's conundrum about the colonies that gave an extra \$1.20 because of burr-comb ladders, and he begs Doolittle to give the answer (*Canadian Bee Journal*, 208). A practical bee-keeper has said to me, "The burr-combs don't make any difference; but the strong colonies that pile in the honey are the ones that make the burr-combs, and those too weak to store much will be free from them. [Say, doctor, why don't you give your own opinion? From the fact that you quote "Practical Bee-keeper" I take it that you indorse his sentiments. It strikes me that he is about right. I have never felt that burr-combs were at all necessary for the production of honey; but it is true that conditions favoring the building of them also favor storing of honey in the sections. With thick and wide top-bars we have very little trouble, comparatively, with burr-combs, and yet with some colonies, and especially if

they are strong, there will be a few of them stuck in; but so few, comparatively, that it will make but very little trouble.—ED.]

TWICE in last GLEANINGS, Mr. Editor, you speak of putting partly worked sections over a newly hived swarm. Of course *you* would put a queen-excluder under the sections, but you don't say so, and some novice will omit the excluder and have the queen laying in sections. [Honey-board? I stopped and scratched my head, and began to think. Neither in the catalog nor in our A B C is there any thing said in this connection regarding the need of a queen-excluding honey-board. Perhaps one is needed when empty frames with only starters are given; but I should hardly think one would be required when empty combs were used to fill the new hive on the old stand, and I incline to the belief none would be absolutely necessary when full sheets of foundation were used, because, in shallow cells on foundation, queens like to lay. As a matter of precaution it might be well to put one on in all cases except when drawn combs were used. I have marked the A B C for the next edition for a little change, for in any case it would be better to err on the safe side.—ED.]

THE *American Bee Journal*, quoting the *Tulare Advance*, says John F. Crowder, from 25 colonies 6 years ago, has increased to 3000 colonies in ten apiaries of 300 each, making him perhaps the most extensive bee-keeper in Central California. Why haven't we heard more about him? [If this statement had come originally from the *American Bee Journal* from a reliable correspondent, I should have believed it. As it is, I can scarcely credit it. While I know California does in some locations support a large number of colonies per apiary, yet I do not believe there is a spot in the world where *10 apiaries, each having 300 colonies*, can be profitably managed. Capt. Hetherington enjoys the distinction of handling the largest number of colonies of any bee-keeper in the world, and his number has been in the neighborhood of 3000 for the last 15 or 20 years. If there is another man who can rival him, let us by all means make his acquaintance. I would write John F. Crowder, but can not find his name on our lists. Perhaps some one in California can give us some information.—ED.]

YOU'RE RIGHT, Mr. Editor; indoor bees wintered under favorable conditions consume less than those outdoors. But the question that always troubles me a little is this: Are not the outdoor colonies in some way enough better to pay for their extra grub? [Yes, that is just the feeling I have; otherwise we would have constructed the most elaborate wintering-cellar that could be made to hold our bees, rather than winter outdoors, entailing a larger consumption of stores. There is no denying the fact that our bees come out strong and healthy, and they scarcely ever show signs of dysentery; and in our locality, at least, the outdoor-wintered colonies were considerably ahead of those wintered indoors, both in point of strength and general vigor of the bees. I say *our* locality. I am quite willing to con-

cede that in other locations the comparative results might be just the other way; and yet if I lived where you do, I am very much inclined to think I would put my bees up in double-walled hives, precisely as we pack them here. In speaking about bee-cellars it strikes me that Bingham has got at the right idea of having cellars entirely under ground, without windows, and below the influence of frost and freezing. That is the cellar we would build if we built any.—ED.]

THE CRAZY DANCE in which a single bee may often be seen to indulge on the comb, whirling about in a circle and making a tremulous motion with its wings, is supposed by a writer in *British Bee Journal* to be an endeavor to get rid of pollen dust. I don't know, but I doubt. At times when all the field-bees are bringing in pollen, the dancers seem too few. [It has generally been stated that the "dancers" are the bees that come in with the first load, either of honey or pollen, and that that is the way the first foragers indicate to the hive bees the intelligence of new honey and new pollen. But there are certain young bees that do a good deal of dancing after coming home with the first load. The first load? how do I know it? No absolute evidence, only I surmise it. Early in the season old bees will do considerable dancing as soon as the first pollen comes; then when both honey and pollen are coming in, young bees only will be dancing; and so I have guessed that, so far as they were concerned, they believed they were the first to give the important news, but which, to the old foragers, was stale information.—ED.]

YOU ASK, Mr. Editor, if I know any non-swarming plan practical for every one. If you mean not to have colonies swarm at all, I don't. But I do know a plan for a locality like mine, whereby any one, even with box hives, can prevent all increase and get more honey than by allowing increase. The plan is simply to return every swarm that issues. It would take a lot of hiving, but there would be enough extra surplus to pay for it. [I had supposed that this plan had been almost entirely abandoned as unsatisfactory. I came to the conclusion myself that the most unprofitable colonies in an apiary during a honey-flow were those that tried to swarm and could not, or had made the attempt and were thwarted. To place a swarm right back in the hive from which it came does not seem to satisfy the instinctive longing of the bees for a new home. They sulk, sulk, sulk, day after day. If, however, you mean by the plan that you return the swarm back to the old hive, having taken out the brood-combs and the brood, substituting empty combs or frames of foundation, then perhaps it would be all right. But that would be virtually the one swarm plan which contemplates putting the brood and parent colony on another stand. If, however, we can keep away the desire for swarming by giving plenty of room, giving large entrances, and a reasonable amount of shade, then we have a colony that, other things being equal, will produce more

honey than one that has been operated on the one swarm idea just spoken of. Now, if you know of any way by which you can put the swarm back into the old hive, leaving all the conditions just as they were prior to swarming, so there will not be any sulking thereafter, I wish you would tell us how to do it. I do not say this to imply that you are wrong, but because I desire to get new information.—ED.]



Robins' anthems fill the air,
Bluebirds carol everywhere;
Bees are humming loud their praise
O'er the coming of spring days.

PROGRESSIVE BEE-KEEPER.

Concerning the starting of new bee-journals the *American Bee Journal* said:

The *Western Bee-keeper* was the name of a new bee-paper started in the West a year or so ago. We learn that it has recently turned its subscription list (?) over to the *Progressive Bee-keeper*. We did not announce its advent, as we failed to see wherein it had sufficient merit. It certainly was no credit to the printer's art, and we failed to see where it could be of much advantage to anybody—not even to its publisher. This latter opinion has now been verified by its giving up the effort.

To this Mr. Leahy replies:

We do not admire this style of jumping on to something that is dead. Bro. York's further remarks on new bee-papers are more timely, and we recommend them to the careful consideration of those who have in mind the publication of a bee-journal.

Mr. York's "further remarks" alluded to are these:

While it is really none of our affair, we can't help feeling sorry for the poor misguided people who think there is money to be made in publishing new bee-papers. In about forty-nine cases out of fifty they have proven to be a delusion and a snare. But we presume we shall see new bee-papers in the future as in the past—with about the usual result.

Mr. Leahy winds up as follows:

Don't do it, friends. It will only use up your surplus money, and you will be glad to get some one to help you let go. The *Progressive* was run at a loss three years before we assumed control. We ran it at a loss for two or more years; then two or three years more it barely paid expenses; and now after ample experience we are satisfied that the same money and time invested in almost any other legitimate business would pay much better.

Mr. Leahy reports good news from all over the country so far as wintering is concerned.

BRITISH BEE JOURNAL.

Concerning birds near an apiary, Mr. G. A. Barnes says:

Last summer we were much plagued here with that agricultural pest, the sparrow, commencing operations on the bees. They began in a small way, carrying off only dead bees from the ground, but soon they began to take the live ones, flying off with them to their nests on the house roof. This mischief was brought to my notice by a friend (a game-keeper), who, on passing the hives, had, he told me, seen the sparrows busy on the alighting-board, catching the

bees as they came in and out, carrying them to their young ones. I thought he must be mistaken with regard to sparrows, but on our going to the hives and seeing the damage they had done, I could hardly think it credible. Being a lonely place they had had a "clear go." The place was alive with sparrows, and, being a lonely spot, they had no disturbers, and probably never before had found food so easy to get as bees. However, after feeding them for a day or two, in a direct line from the bedroom window, by the use of my gun well charged with small shot, I soon reduced their numbers. We then took all the nests we could find, and shot the sparrows whenever we could. I am a lover of birds, but after such a treat as that you may depend on it both tom-tits and sparrows will receive a short shrift at my hands. They are welcome to the dead bees and a few live ones too; but I object to them coming in scores and taking them wholesale.



After having had many recipes for the use of honey internally, I am glad to give the following for making soap:

Take 1 lb. of best soap; cut it up into thin slices, and put it into a double saucepan, and melt. Add 2 oz. of honey and 2 oz. of palm oil; stir it well, and boil ten minutes. Then pour into molds. A few drops of oil of cinnamon or oil of cloves may be added to perfume it. A good soap can be made by omitting the oil and using more honey.



Concerning mice in the hive, Mr. Belderson says:

Looking over my hives in January, after several days' rain, on lifting one roof I found the chaff cover had been gnawed by a mouse. Later in the day as the bees were flying I raised the corner of the quilt to see if all was right. The admission of light disturbed Mr. Mouse, who thereupon put his head out of the entrance to the hive. I thereupon set a steel trap and caught one mouse on the top of the quilts. Next day I found another dead, also above the chaff cushions. This one had died a violent death, as I counted six stings in the head.



BEE-KEEPERS' REVIEW.

Mr. Hutchinson says:

The value of bees to the fruit-grower and the horticulturist has become recognized to such an extent that, at the last meeting of Wisconsin bee-keepers, one of the horticulturists, who owned extensive orchards, came into the room and offered a site for an apiary, free, to any bee-keeper who would establish an apiary upon it.



The editor favors a law allowing the owners of foul-broody colonies some compensation for colonies destroyed. That can not be done, probably, as such colonies are of no value anyhow; and if compensation is allowed because the bees contracted the disease, then we all ought to have a pension when we get the grip.



REVUE INTERNATIONALE.

"We have just passed through a very unhealthy winter. Folks are complaining everywhere of coughs, colds, grip, and influenza. And this is not surprising. The temperature makes incredible leaps, not only from day to day, but even in the space of an hour. One day it freezes, and the day after it is so warm that we have thunder-storms not exceeded in violence by those of July and August. Do not forget that honey is an excellent remedy for or at least a mollifier of diseases from which we now suffer. Use it freely; give it often and liberally to your children, and thus avert many ills."—*Translation.*



CALIFORNIA STATE BEE-KEEPERS' ASSOCIATION, HELD IN LOS ANGELES, FEB. 21, 22.

Robert Wilkin, our honored president, and a veteran in the honey business, presided; and, though he had experienced some losses, he held out a hopeful view of the future. In his address he gave us some reminiscences about the early bee-keeping in this State, and it seemed a real pleasure to him to recall the time when colonies of bees were sold for \$100 each, and the honey for \$1 00 per lb., and also bring to mind the year he went to London with 70 tons of honey.

Sec. McIntyre was not present. Oil is now the craze in California, and derricks are put up and wells put down in all possible places. Drillers were at work upon the secretary's land, and he was watching for the oil to flow. There was not a man in the convention but hoped he would strike it rich.

The comb-honey discussion brought out the fact that cull honey is largely sold in Los Angeles. Dealers who ship honey east ship the best and dump the culls upon the local markets; and when the bee-keeper comes along with a No. 1 honey he finds the cheap article in competition, and it breaks down the price for the good honey. Remedy—produce only cull honey for the home market. Furthermore, the farmer bee-keeper is a producer of cull honey, and, still further, not one comb-honey producer in ten knows how to produce a fancy article.

There was not much complaint manifested about bee-paralysis. There is evidently not so much as there was two years ago, and at the end of two more dry years there will not be a complaint.

Ants are a troublesome nuisance in the apiary. To abate the nuisance, find the nest and pour into it a spoonful of sulphuric acid; or, if the nest can not be found, rake air-slacked lime over the ground.

A noted San Francisco bee-keeper sent in a paper telling how to get the early bee. His plan is to feed in October in order to breed young bees for wintering. That proceeding may be necessary in the East, or in that windy, foggy, and generally disagreeable San Francisco climate; but the plan did not find favor with the bee-keepers of this sunny clime.

Foul brood was discussed. Even dry seasons and dead apiaries will not cure the disease. Steps were taken to improve the foul-brood law, and keep in line with the Eastern States.

A believer in improvements was present, and stated that an uncapping-machine would soon be forthcoming that would uncap six or eight combs at once, and just by pressing a button. The automobile was recommended so strongly that it made a favorable impression. One of the bee-men went right out and tried to buy one. His name was Honey.

A Santa Barbara bee-keeper boasted about the quality of his honey, and stated that he extracted all of his honey before it was capped, and when it was very thin. He ripened it to the proper consistency in the tank.

Eucalyptus is winning golden opinions as a honey-producing tree. Nectar from it is about the only living the bees get during the dry season.

The glad hand was extended to us by Prof. Cook, of Pomona College; Frank McNay, of Wisconsin, and Oliver Foster, from Colorado.

The Union Hive and Box Co. let us know that they were in business, and quite a party of bee-men went out there, and for the first time saw the manufacture of Weed-process foundation.

An addition has been recently made to the already overcrowded condition of the exhibit in the Chamber of Commerce, of a large exhibit from Fresno Co. The fruits and the raisins are nicely set out with a nice case showing several sections of fancy comb honey from the apiary of J. C. McCubbin, of Selma, Cal.



THE USE OF SEPARATORS.

More Honey Without Separators Sometimes, but Less Money; some Pretty Strong Evidence in Favor of Separators.

BY R. C. AIKIN.

This is a common topic. Common as it is, possibly there is room for more on the subject. Among producers that are considered real practical men and leaders, there are yet some who do not use the separator, while in the lower ranks there are very many who do not.

At our last annual convention of the Colorado State Bee-keepers' Association we had a warm discussion on the use and non-use of separators. When the subject had been pretty well thrashed I offered a few remarks, trying in brief to cover the whole ground. We had present the editor of this paper, who was supposed to be taking these discussions to reproduce them; but afterward he asked me to furnish him the speech in writing. I told him I could not do it. I might write the substance; but to reproduce that speech was out of the question; it was gone, and I did not remember nearly all I had said. Two very busy months have passed since, and now I shall try to give my ideas about this much discussed question.

ARE SEPARATORS A NECESSITY?

Most decidedly, yes. It is almost an im-

possibility to succeed in getting honey in proper shape without them. Give me a good colony, one that can enter and *work the whole super at one time*, and do it *easily*; a good rapid flow that comes steadily; weather regular, temperature right, sections with full sheets of foundation, and I will get a lot of sections so smooth and pretty that many will say they are perfect. They probably can all be cased, at least with a very little care. The variation in weight between sections will be very little. Having accomplished this feat, shall I go into print and say, "As for me I have no more use for separators?"

In 1889 I produced 8 tons of section honey. All colonies were strong, and no swarming; the flow was one of the freest I ever experienced, so that two apiaries averaged 150 pounds to the colony; full sheets of foundation were used, and two separators in 28-section supers. Almost the entire lot of 16,000 lbs. was cased, and almost as it came, without extra care in placing sections—possibly not over 100 to 200 sections so bulged that they had to be left out. That lot of honey was said to be the best large lot that had ever entered the city of Denver to that date. You see it is a possible thing, but not probable, that you will accomplish such a result. Why have I not done it since? I will tell you.

Honey-flows are not all alike. Seasons differ. Colonies are not always the same. In all the years since that one, I have never had such results; and how many more years till I shall have I can not tell. I may have the bees and the weather, but not the flow. It takes the combination of favorable conditions to make it a success, and you may have those conditions once in a lifetime or you may not. Some localities are more favored than others; but, one year with another in the average location, we can not produce what the market demands if we do not use separators. It is out of the question.

But you will ask, "What if some are bulged a little, or uneven in weight?" That question is easy to answer. For your own eating, and for your own "family trade," where your customer buys a case or more, takes it home and uses it all at home, it matters little whether the honey be straight, or even weight; but if the honey is to go into the retail store it must be both regular in weight and all within the wood. Much has been written about dealers selling by weight or by the piece, and considerable has been said about a section for a certain price.

It is the custom to sell groceries by the piece or *package*, as in cereal preparations, coffee, tea, butter, fruits, salt; and now even crackers, cookies, and all such come in *retail packages*. The goods not put up in packages and retailed that way are altogether the exception. The demand is for packages that sell by the piece. It is absurd to think of producing honey so that it must be sold by weight, one section for 8 or 9 cts., another for 10, 11, or 12, etc. It is also absurd to talk of producing a section that will sell for a *certain price* (that hits you, Mr. Editor); for just as the supply and demand vary, and prices

fluctuate, and as at any given general price different localities vary in their retail prices, owing to closeness or distance from the producing point, prices will *ever* be a varying quantity. My ten-cent section here or in Denver must cost more when sold in fancy markets of Chicago or New York.

We must produce so that our honey will sell by the package, both at wholesale and retail. Owing to the ever varying conditions under which we must produce honey, slow, intermittent, or irregular flows; even a flow that is as steady as clockwork, but slow; or a fine free flow interrupted by irregular weather; or a swarming colony; or different managements, etc., will make it *sure* that there must be crooked combs particularly bulged and uneven weight, in the best-managed apiaries. If we can not produce year by year with a reasonable certainty without separators, we must use them.

Even when we use separators we shall have uneven weights. It requires the most skillful management in very many seasons and localities to get nice section honey—sections that will weigh *even* one year with another, one colony with another, and one part of a season with another part. But while we can not have complete regularity in weight, we *can* have the honey all *within the wood*, and an approximate unanimity of weight, by the use of separators. That the honey be within the wood is important, primarily to aid in equalizing weight, and principally for safety in handling. Even practical apiarists will have accidents marring cappings by the comb faces touching, or coming in contact with the adjoining section or case side, etc.; and if we who have both practice and a first interest do such things, how much more the inexperienced!

I have handled a great many carloads of honey, both my own producing and of others; have also seen many other carloads, and I know that, even though the use of separators lessened the amount produced, that *with* separators is worth more money. I am at this very time selling some honey produced without separators. It is the leavings after the best was picked out, and the producer was glad to get 5 cents a section for it. He had about 75 cases all told, and from the 75 he sorted out the best to the amount of about one-third or a little more, and this best third brought him 20 cents per case less than the great bulk of mine and others produced with separators. My poorest grade of separated honey brought more money than his *best*, while my poorest brought very nearly double his poorest.

It is but fair to say that this comparison is of one new in the business as against my years of experience; but there were others more nearly equal in experience, but using in part separators, and the difference in favor of their use was from 10 to 20 per cent. I know a man who says no separators for him, he would not use them. I once asked the privilege of shipping a small lot of my honey in a car he was shipping, largely of his own production. He consented that mine should go

in if it was nice No. 1 goods. So urgent was he that I put in only nice honey that I used great care in grading, and even left off my name and address, lest I should get the wrong kind of advertising by having it on; but when I loaded the honey you may guess my chagrin to observe that I had the nicest lot of honey in the whole carload. Mine was separated, the rest not.

Let those who advocate no separators go into the markets and handle honey, either at wholesale or retail, and they will be cured of their error very quickly. When you think of whether you will or will not produce with separators, just ask yourself what you would prefer were you in the retailer's place, and you can soon settle the question.

But you say you can get more honey without than with, and it means more money to you. You are wrong. Bees will just as readily enter a super with separators as one without—often, weak colonies *more* readily. A few bees can cluster between separators and work a few sections, when if they were to start in a larger compartment they would not do it; or if they did they would spread into more adjoining sections and *finish fewer* of them. Strong colonies will take your whole super, separators or no separators, and store just as much with as without; but the weak colony is the one that will do the very poorest work, bulging and irregular, and are the ones of all colonies that *must have* separators if we get a No. 1 article from them.

Now figure as you will the cost of separating; extra time cleaning and casing non-separated; bulged thrown out; faces marred in your own or retailers' hands; difference in prices paid for the various sorts; loss of trade by crooked combs disgusting dealers when they are broken, and all the factors bearing on the subject, and you will use separators.

Loveland, Col.

[It is true, that Mr. Aikin gave one of the best talks on the use of separators I ever heard or read, and I accordingly asked him to write it out for GLEANINGS.

With regard to the ten-cent honey, and the friendly "dig" you make at the editor, I think if you would look up what I have said in the matter you would see that I had reference to a particular locality and to a particular season. It would be folly to think that the same sections could be sold from year to year for the same money.

I think you are quite correct in saying that a weak colony will do better in a separated super than in one without separators; but when the colonies are strong, then the results seem to be reversed.—ED.]

AN OLD THEORY EXPLODED.

Rich young Drone married poor Virgin Queen.
People thought they were not well mated;
She was spry, industrious, and clean,
He all kinds of work fairly hated.
But to lie around she soon understood
Better than Drone, the work-shirker;
But strange! After rearing their young brood,
Though Drones, every one was a worker.

TWO LITTLE SPRITES.

BY EUGENE SECOR.

Capture and bring me the two little sprites
 That haunt every corner of grandmama's house ;
 Don't let them go till I feel of the mites,
 And hold them as tightly as pussy a mouse.

Phantoms of airy-like figures flit by,
 With tresses of brown, but wind-tangled all day ;
 Bright eyes that peep out like stars in the sky,
 And smiles that are sweeter than blossoms in May.

Marks of their fingers are left on the pane,
 And remnants of rag babies litter the floor ;
 Kitchen and pantry are not sought in vain,
 For good things are always kept somewhere in store.



The cookies and sweet cakes from grandma's are best,
 And freedom is valued as though it were bought—
 (Urchins away from the motherly nest
 Forget to keep quiet as they have been taught).

Fairies they are that *convince* one they are
 Real tangible things that appeal to one's mind ;
 Press their impress on dull lives which are far
 Removed from the orbit of their sprightly kind.

Welcome the antics of these little elves—
 They carry us back to the days that are gone ;—
 We of the gray beards would like it ourselves
 If time past high noon could be turned back to dawn.

Life is a poem where childhood's pure song
 Is echoed with laughter from parlor and hall.
 Let the old world and its mad bustling throng
 Move on while these midgets my spirit enthrall.

GENERAL CORRESPONDENCE

TRAVEL-STAIN NOT CAUSED BY THE SALIVA OF BEES.

Breeding out the Swarming Impulse; what has Already been Accomplished in the Vegetable and Animal Kingdoms by Careful Selection and Breeding.

BY J. E. CRANE.

In GLEANINGS for 1899, page 353, is an article by S. P. Culley in which he advances a very ingenious theory as to the cause of travel-stain. He says it is caused by the saliva of the bees, which first turns the combs yellow and then black, as tobacco does a pipe. I have had no occasion to change my view on this subject. During the past season I have had but few combs but were badly stained; not only were the outsides of the cappings stained, but the inside as well, and all the way through them; and not only the cappings, but the combs also, from center to circumference, and all through one side to the other; but as the color corresponded very closely to the color of the pollen of the white daisy, on which the bees worked freely, returning to their hives well covered with its yellow dust, I was led to believe this to be the cause.

Most of us have found that the amount of saliva depends on the amount and quality of food; but Mr. Culley says it is right the other way with bees—a very ingenious adaptation of theory to the condition of things. I am not going to quarrel with him about it—only disagree—that is all.

Further on he takes me to task for comparing the swarming instinct of bees to the sitting instinct of hens, as I did a year ago in the office of GLEANINGS; and then he proceeds to throw cold water on my pet hobby of a breed of “non-swarming bees.”

Now, lest Mr. Culley and other readers of GLEANINGS should think that the arguments which he puts forth have squelched me, “I rise to say” that I still believe, not only in the possibility of producing such a breed, but also in the practicability of it for those sections where the harvest lasts as a rule from two to four weeks only.

Mr. Culley says: “Is Mr. Crane really sure that the swarming impulse or instinct is rightly compared with the sitting impulse or instinct?” (Quite sure.) “Bees are different from chickens.” (I believe it.) “There is the colony which perpetuates itself by brood-rearing.” (Just so.) “Then the increase of colonies requires swarming.” (No doubt of it.) “The comparison involves some fine points.” (Not necessarily.) “But inasmuch as the bee can not live an individual life, as chickens do, the question is whether the swarming instinct is not allied to the propagating instinct, which is universal and ineradicable. From this point of view one might con-

tend that the production of a breed of non-swarming bees can be compared only to the production of a breed of fowls that fails to propagate.”

I presume so; but that is not my point of view. He goes on to say, “If it can be proven that the swarming instinct is comparable with the propagating instinct of fowls rather than with the sitting instinct, then Mr. Crane’s argument fails; for non-sitting, we believe, results from an increase of propagating or egg production.” I doubt it. The question is, whether a strong natural instinct can be bred out. If we were to admit his theory I can not see that the swarming impulse is any more a propagating instinct than the desire of birds to sit on their eggs, and thus increase the number of families or individuals.

He continues: “There is a limit to man’s control in breeding to produce certain results.” (I am with him here.) “He can produce a



J. E. CRANE.

cow that gives *more* milk.” (I have extracted the sweet lacteal fluid from the well-filled udders of many such); “a sheep that bears more wool” (I have seen thousands of them); “a strain of bees that gather more honey” (it is in the air); “but has he ever produced a new trait, or been able to eradicate a primary instinct?”

How about the various traits of dogs or pigeons, as in the pouter or tumbler that have been developed by man, and by careful breeding have become hereditary? How about the Sea Island cotton that was brought from the West Indies as a perennial plant, yet in the hands of skillful planters, by careful selection, has become an annual of great value?

As for eradicating a primary instinct, how about the incubating instinct of certain varieties of gallinaceous birds? Has it not been largely eradicated? Is it not a primary instinct?

“He can manipulate what already exists, but can not create.” Just what we propose to

do—manipulate the swarming instinct for something more useful. And as for the rest, with the almost unlimited new varieties of fruits, flowers, and plants; with Prof. Loeb rearing fish from spawn fertilized with chemicals of his laboratory, instead of the sperm of the male; and Prof. Emile Lung producing frogs of either sex at will, it looks as if men came perilously near being able to create.

Mr. Culley continues: "Possibly the swarming instinct or impulse can be bred out" (I am with him again), "but probably it can not" (I say, probably it can). "The possibility justifies the trying." We agree again, most perfectly. But I notice that Doolittle has put on his specs and is looking over my shoulder, saying, "What is that?" and with a look that expresses the sincerity of his convictions he repeats, "Bees swarm because in the beginning the Creator told them to multiply and replenish the earth." Quite true; but when they, with the kindly assistance of man, have already multiplied, and the earth is, whereabouts at least, quite fully replenished, shall they keep on multiplying, much to their own and man's disadvantage? Having fulfilled the law, are they any longer under the law? If they have been assisted by man in fully replenishing a given territory, shall not man now, by careful selection, teach or restrain them from further colonization schemes?

But I see I am digressing. Mr. Culley concludes his paper by telling how to produce a non-swarming strain of bees if it can be done. He says, "If it can be done at all, keeping them from swarming by dividing, etc., for years—for generations and generations of bees, till they 'forget,' so to speak, and the swarming idea, because not using nor needing it, would seem to be the method to adopt in order to produce non-swarmers."

Well! If we take this method of doing it I do not think I shall hazard my reputation as a prophet in saying it will never be done. I should say, as he does, "Probably it can not." But this method does not help matters at all. It simply changes natural to artificial increase; and this must be continued for many years, perhaps fifty or one hundred, without knowing how we are likely to come out in the end; and I am sure no one would have the patience. No, no! let us go at it in a scientific way, in harmony with natural law that has produced most marvelous changes in both animal and vegetable life—the law of selection.

How shall we begin? Let us select a queen two years old for a breeder. If we can find one that has not swarmed in that time, so much the better, provided it has stored honey with the best, or is as productive as any other. If we do not have such a queen, let us select as nearly as possible. If every colony in the yard has swarmed in previous years, let us take the queen of the colony that stored most honey before swarming, or has swarmed latest in the season, for we want to develop the storing instinct at the expense of the swarming instinct if possible. If we pursue this method for two or three years we shall most

likely find some colony that has not swarmed for that length of time, and proves to be one of our best honey-producers. Now let us use this one for rearing all our queens for, say, two years, should she live as long. Very soon, unless bees are an exception to all vegetable and animal life with which we are acquainted, we shall be able to find colonies with a pedigree; i. e., we shall find colonies that are two years old that have not swarmed, nor the colony from which their queen came. Presently, and it may not be many years, we shall have a queen to breed from whose ancestors in the line of queens have not swarmed for five or six generations. Such a queen, if mated with drones of similar parentage, should produce queens that, when properly mated, would give rise to colonies but little inclined to swarm. If two or three or more yards could be run on this line, and queens changed from one to another, it would help to overcome any evils likely to arise from too much in-and-in breeding.

If, as Mr. Culley intimates, the lessened sitting instinct among certain breeds of hens comes from an increased egg production rather than any direct efforts of breeders to produce a non-sitting fowl, it proves the correlation of parts, showing how, by increasing development in one way or part may change it in other ways. When Mr. Vilmorin changed the wild carrot from an annual to a biennial he changed the character of the root, increasing its size as well as its time of blooming. Some with whom I have talked seem to think that, to produce a race of non-swarming bees, would be to weaken the race and their productive capacity. It does not seem to me so. Yet the breeding for color has seemed to do just that. But increased capacity for honey-gathering, or an increased instinct for gathering, seems quite in line with a weakened swarming instinct, as increased egg-production appears in connection with decreased incubating instincts.

So far as my experience goes, or I can remember, many of my most productive colonies have been those in which the instinct for honey-gathering seemed to overshadow the colonizing impulse; and they worked right on, very largely forgetful of the command to "multiply and replenish the earth."

Middlebury, Vt.

["Rearing fish from spawn fertilized with chemicals of his (Prof. Loeb's) laboratory" is a sentence that astounds me. If it came from the pen of any less authority than Mr. Crane I should class it as "rank heresy;" and, even though it seems to be credited by our friend, I can not help feeling, nevertheless, that it is almost on a par with the canard of a few years ago when it was claimed that eggs could be manufactured, and even *hatch chickens* without feathers. It was thought that some ingredient had been omitted by the chemist, but that he (the chemist) would soon perfect his artificial eggs so that they would hatch chickens *with feathers*. Perhaps I do not understand. However, the rest of Mr. Crane's article is good, orthodox, practical, and scientific.—ED.]

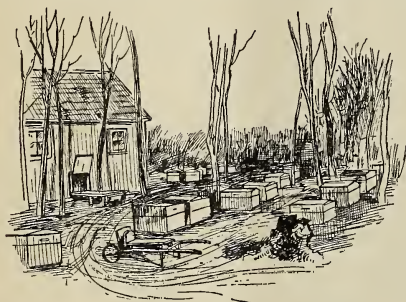
BEE-KEEPING FOR WOMEN; HOW TO AVOID HEAVY LIFTING.

A Valuable Article from one of the Most Extensive Lady Bee-keepers in Colorado.

BY MRS. A. J. BARBER.

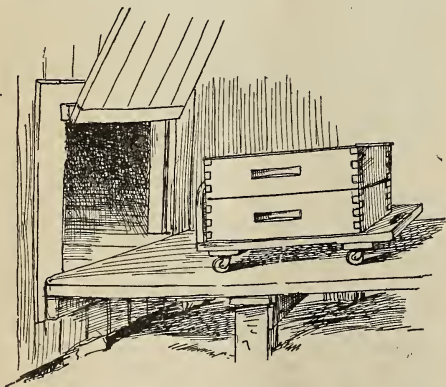
My first practical work in producing extracted honey brought me face to face with two very disagreeable things. These were, lifting the boxes of honey, and working among as many bees as we had to let in when we opened the door to take the honey inside the house.

I finally tried the plan of putting common bed-casters on a board made to fit upon my Daisy wheelbarrow. Upon this board I put my honey-box and run it into the honey-house



without lifting at all. I had a small door made, and had the hinges at the top instead of the side. Under this door is a small platform sloping gently toward the house with the outer edge just as high as a Daisy wheelbarrow. The illustration will show how the honey goes from the wheelbarrow into the house.

When I get ready to take off the honey I put a wheeled board on my wheelbarrow, and put an empty hive-body upon it, and with smoker and broom begin to take out my frames. Most of the bees are shaken and brushed off, the combs put into the hive-body,

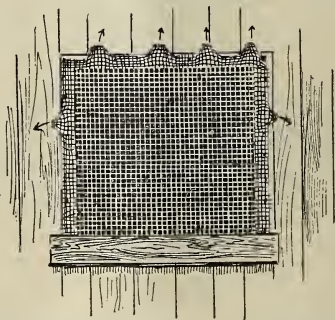


and, when it is filled, I run it into the house without having to lift more than one frame at a time or letting the bees that always follow me get into the house. After the first load or two my helpers have some empty combs. These are put back into their boxes still on

the wheeled board, and shoved out so that I return them at once and use the same board and box to get another load. In this way the hives are closed up so there is no robbing. I



have only three boards at each apiary, and they are all I need. In using the half depth frames for extracting I do not disturb combs, but take the whole super. My hives are all set in pairs or threes so that I can use one for a table while at work with the other. When I raise the super I set it on the next hive until I replace the cover, then the super is stood on end with the bottom projecting over the front of the hive. I raise from 12 to 20 in this way, and then begin at the first one and smoke the tops of the frames a little to drive the bees



through. When most of them have come through they are swept off with a few strokes of a Cogshall broom; and as they fall in front of their own hive they are all right. As fast as they are cleared of bees the supers are taken, two at a time, and run into the honey-house. We use the same plan taking off comb honey.

When taking off honey, those hives that have not filled their combs are marked; and next day, when extracting is out of the way, they are looked over and dealt with according to needs. Sometimes a poor queen is removed and a better one given, or the colony may be broken up and given to new colonies to help them out. We have the tops of our windows arranged with bee-escapes, made of strips of wire screen. The few bees that get into the honey-house have no trouble in getting out, as, on extracting days, we take out the sash so that there is only the screen in the windows; and, though it is all home-made, and not very pretty, it is quite effective in keeping bees out

and letting those inside get out. These simple contrivances have saved me a great deal of backache and many bee-stings.

Mancos, Col.

[I have already referred to the fact that Mrs. Barber is one of the most extensive bee-keepers of Colorado. She is not only engaged in business extensively, operating a large number of colonies, but she makes a real success of the business, or at least it was so reported to me when I was visiting in that State. Hearing of her everywhere I went I wrote her on my return, asking if we might have the pleasure of a series of articles detailing her methods, and how she managed to do so much of the work herself. The one above is the first



MRS. A. J. BARBER.

one of the series, and it is so intensely practical that I know our readers will be especially pleased to learn of her methods from which, no doubt, a large part of her success comes.

Her method of taking off honey without doing heavy lifting I know is practicable for we use the same plan in handling lumber. Railroad tracks run all around among our lumber-piles. A large push-car is placed in front of the lumber-pile. On this car is another smaller one with small wheels. On it the lumber is piled. The two cars, one riding on the other, are then pushed up to the end of one of our large buildings, and the car on top of the lower one is pushed off, as it were, on gangway planks, which land it on a platform in front of a big door. This opened, and the whole load is pushed in front of the big planer, making one handling of the boards, for the pile can be moved to the most convenient

point for shoving through the planer. All this may seem a little aside from the subject of bee-keeping; but it shows that Mrs. Barber and the Root Co. have been working on the same principle—the one to handle heavy loads that are converted into hives, and the other to handle heavy loads that come out of those same hives.

One who can use his head as well as his hands is worth three of one who can use his hands but has no ability or faculty for economizing labor. Mrs. Barber seems to know how to use both her head and hands. There are a good many people who have good heads, but never think of trying to discover a short cut. The difference of working with hands alone, and working with hands and head, makes all the difference between success and failure in almost any business, and this is especially true of bee-keeping.

This Mrs. Barber is the one who told our readers, about a year ago, how to produce both comb and extracted honey at the same time, off from the same hive, and how to use extracting-combs for baits to draw bees up into comb-honey supers. The article was commented on very extensively, and copied in nearly all the bee-journals, and now is given a permanent position in our A B C of Bee Culture.—ED.]

A BEE-KEEPING TRUST PROPOSED.

Trust against Trust; Fighting Fire with Fire.

BY W. L. COGSHALL.

Brother Bee-keepers:—Combinations seem to be the order of the day. The object is to get a better price for their output, and that is what the bee-keepers ought to do. If we can not do that, do the next thing best—correspond or give our bee-journals the opportunity to know what the yield is in your location. I am aware that the California association has done a great deal of good in that direction. I will give you a little of my observation I made this year.

I knew from the bee-journals I read that the honey-crop was light all over the country. Therefore early in the season I wrote several letters to the leading bakeries, offering my honey, buckwheat extracted, at 6 cts. F. O. B. What was the result? They all wrote me back, offering me $4\frac{3}{4}$ delivered, saying they were *restricted* to pay only so much (baker's combination or trust, if you please). I tried the same scheme six weeks later. Well, the bakers had found out that the honey market was higher, and they were willing to pay 5 cts. a pound. Mind you, the prices were exactly the same at each bakery, and they were *instructed to pay that and no more*. Combination again.

Brother bee-keepers, I only wish we were business men enough to keep our heads together and form a combination, or do the next best thing—keep each other posted on the yield. I should like to get the experience of the bee-keepers. Perhaps some of the old heads might map out a way by which

the bee-keepers can keep in pace with the trusts.

I see by to-day's paper that the Standard Oil Co. has made the largest dividend ever made—\$20,000,000 on \$100,000,000 of stock worth \$538. Think of it, my friends.

West Groton, N. Y.

THE BENEFITS OF CO-OPERATION.

How it Keeps up Prices in California and Colorado, and Nets the Producers more Money.

BY F. E. BROWN.

The benefits that we have received by associating are many, and we are ready to give others the benefit of our success. In the past ten years, with the exception of the last two, we have had a very perplexing problem to solve—how to get our just return for our honey at a price that is not far below its actual market value. We have been dependent upon our local buyers for our product, for this reason:

We produce in less quantities than carload (as individuals); hence we have been obliged to sell locally or suffer a loss in freight rates; and if we ship to San Francisco (as it is altogether out of the question to ship to the eastern market in lots less than carloads), small lots are usually consigned; and the results are what they are to almost everybody who has had experience along that line. So we have usually sold our honey to the local dealer who would pay cash to us, and buy for as little as the goods could be obtained, and, in many instances, very cheap. I know of parties who, after extracting a few cases of honey for the first time in the season, took it to town, as they wanted money very badly; and the buyer soon discovered this, and would take advantage of the producer's circumstances, buying the honey at from one-half to one cent below the market value at the time of the sale. The next man who took in honey to sell would be told that he was buying honey at *such* a price, and could not afford to give more; so the price was established for some time, at least, upon the circumstances of the man who had to have money.

Another heavy loss by the old plan was in the tare, as we were at the mercy of the buyer, and obliged to take the tare that he dictated, amounting to about \$30.00 on the carload, all of which we now save.

The way we now proceed is to elect a business manager, contract all of our season's output to him (arranging to pay him for his time and expenses); he is to sell in car lots for market value, and return to you net proceeds. Not having a warehouse to store in for the association, each producer who has signed contracts is to report to the manager at each extracting, with a sample of the honey extracted, together with the number of cases represented by said sample. The honey is stored at home. When the manager gets reports enough to assure a car of such honey as he is offering to market, he will order the honey brought in to the place of shipment, where the car is sold

or shipped for delivery. The producer gets the cash at about \$10.00 a ton more than he usually gets.

We have this year produced and marketed 13 cars of extracted honey on the above-mentioned plan. The buyers abroad will make offers for a car of honey, asking what the grade is, and very often will inquire what is the tare. We always quote exact tare, and find no trouble in thus selling; and in allowing exact tare there is no one hurt; but some set up the howl that there is an established tare in the eastern market, and if they buy at exact tare they will have to lose in the deal; but by standing firm I have had no great difficulty, and in no instance have I lost a sale by standing for the exact tare.

Hanford, Cal., Dec. 11, 1899.

[The bee-keepers of Colorado have combined in a similar way, and have secured results that are so far very flattering. Had it not been for the Association, Colorado honey during last year, when there was a scarcity, would have netted the producers scarcely more than prices of the former year, when there was plenty. As it was, Manager Rauchfuss showed the Colorado honey-market clear up, notwithstanding that some of the large commission-houses tried to bully him down. He stood firm, and made them pay *his* prices, not theirs. See Prof. Cook's article, page 273.—Ed.]

GOOD BEE LOCATIONS IN CUBA.

A Wild-geese Chase for them, Remote from Foul Brood, and within Easy Access of the Markets.

BY HARRY HOWE.

When I started for Cuba it was with the idea that all I had to do to get a good place for my bee-farms was to find some unoccupied space and stay there. This delusion was quickly dispelled by learning of foul brood. This led to a study of the present limits of the disease, which is by no means completed yet. But about this time I saw that one of the three apiaries under my care was doing much the best. Then inquiry showed other apiaries doing still better, while walks in the fields showed that there was a good reason for the lack of honey in two of my apiaries in the shape of the absence of flowers.

We are only eight miles from Havana, on one of the fine roads leading from the city. As it chanced, the big cattle-dealers selected this neighborhood as a sort of receiving station for their stock. Now, at that time cattle came in at about 2000 per day, and all were very hungry. Cattle do not usually eat the aguinaldo (bellflower); but these did, and every thing else green. At one time there were 10,000 in sight from one hill. This brought up the question of special troubles to be looked out for.

Then, as my Spanish began to improve, came long wheel rides and visits to every bee-man I could hear of where I arrived with a big bundle of questions. Owing to the total absence of roads outside of the fine stone military roads, locations for Americans narrowed down

to spots near railroad stations and a strip along the stone roads. Of these there are only about 200 miles all told; but they are the finest it is possible to make—perfect for wheel-riding.

Then came the foul-brood problem again. Only two of these roads lead out of what was clearly known as the foul-brood district. A ride over all of them showed only about six locations where there was room for more than one apiary not already occupied outside of the foul-brood zone. In many places one could ride for miles and not see a single flower of aguinaldo—nothing but waving grass and a species of palm not good for honey.

Then came a study of railroad locations; but a five-minute conversation with a general freight agent fixed that. One cent a mile per 100 pounds was about the figures. This would not allow one to get out of the foul-brood zone which extends around Havana, and get enough for his honey to pay freight. There is also a strip around the coast where they can freight by water, which I did not look up far. I wanted to be where there was mail once in a while. This reduced me to one of the six locations which I now proceeded to study in detail, and grade as nearly as I could. By the time this was done I had been four months at it, and had come to the conclusion that there were more places where bees would starve than there were where one could get twenty gallons to the hive as some have done this year.

Of the six places I soon decided which stood first, and then came the real trouble. The unit of land measure here is about 33 acres, and I could not rent a less piece, and rent is high here. Finally, however, I got two places rented, and began to feel easy, when the owner of the one on the best bee location sent word that he had sold out to an American syndicate. As my patch was near the middle of the farm of 36 square miles I was out of it, and at the present time I have not been able to rent another place.

In addition to the location, the possibility of getting bees for seed came in. Mr. W. W. Somerford was at the same time engaged in a search for bees, and in the five months we have been able to buy only three small lots. I have at the present writing 83 colonies which I have transferred into modern hives.

The bee search revealed two things: 1. The great scarcity of bees; 2. The presence of foul brood in all sorts of unexpected places. There is, of course, a very large amount of the finest bee country in Cuba. I have traveled for miles through a perfect tangle of honey-bearing plants, but it would cost more to bring out the honey than it would to raise it. In the good time to come, when Cuba has roads, or when the railroads are compelled to carry freight at a decent price, there will be great chances to raise honey here. At present the good places are few indeed, all things considered.

San Francisco de Paula, Cuba, Feb. 15.

[All of this is very interesting to me, as I am planning to make a trip to Cuba next fall.

Whether I shall go on a wild-goose chase with our friend Harry remains to be seen; but this much I should like to do—take a trip on their good roads, or where they are good, rather, and see something of the country. From several sources we learn that foul brood has gotten a terrible foothold in the island; and the fact that there is a great deal of ignorance on the part of many native Cuban bee keepers makes the situation a good deal worse. Intelligence, coupled with the right kind of legislation, is the only thing that will keep this dread scourge in check.—ED]

FOUL BROOD IN CUBA.

A Good-natured Burlesque: the Folly of American Bee-keepers Rushing to Cuba; Cuban Honey will Never be a Competitor of American Honey, and Why.

BY GEO. ROCKENBAUGH, JR.

Now that Florida is in the old ruts, as she was in 1896, a good many of the so-called beekeepers, or would-be beekeepers and fruit-growers will turn their eyes to Cuba, and probably some will carry their household goods with them, bees and all, before coming here to look for a location. I can almost imagine I see a shipload of bees and hives coming now. Those who contemplate coming here need not carry any bees with them, as the woods are full of them; and as to locality, one can squat down in any old place and it will support 200 or 300 colonies providing he takes foul brood in the bargain. The expenses in coming to Cuba are very slight. The railroad companies charge 10 cts. per mile, baggage extra, and the ship companies have only doubled their rates in the last three months. Living is also cheap here. Carne de vaca (or jerked beef) is 26 to 36 cts. per lb.; American salt pork, 12 cts. per lb.; flour, \$8.00 per barrel; coal oil, 40 cts. per gallon; common shoes, \$5.00; cotton prints, from 12 to 15 cts. per yard. Eggs are 60 cts. per dozen; spring chickens \$1.20 per head.

The Pan-American and Cuban express charge enormous prices. You prepay express charges in the States, and you will have to pony up here again on a package of garden seeds weighing 6 lbs., \$4.22. But, enough of preamble.

In the Philadelphia meeting of last fall I think the discussion ran high about Cuban honey overstocking the American market. Not so, my friends. There never will be enough produced to supply New York city. Foul brood has finished this island for good. I have gone 300 miles on horseback in an unbroken country, and mountains that line the north coast, and resemble the Sierra Nevada. Sometimes I would stand in the saddle for half an hour, going up and down at a break-neck speed. I have inspected some 30 native apiaries, numbering from nothing to 75 log gums, and have yet to find one that is not rotten with the disease. I have been as far south as Santa Espiritu, west to Caibarien, and find every thing in the same condition.

The so called Florida freeze has not affected this island at all, though a stiff wind from the northwest blew for 48 hours, dropping the mercury down to 52, while at Jacksonville it was 16, and Tampa 26. The natives tell me that ice half an inch thick was formed here in 1856.

American bee-keepers will never succeed here while the natives carry it on in a slipshod way by using log gums open at both ends. When a swarm is hived in one of those logs it takes up its abode in the center of the log, and builds its comb at one end; and when this is full the native smokes them to the other end, and in that way the queen is supplied with new comb every three months. While the log is open on both ends the foul brood can not overtake it as in an American hive, where the queen makes her home on eight or ten combs at all times.

I have tried to cure the disease, both with medicine and by transferring, but have made a failure so far. Probably some of our foul-brood doctors will give me some light on this question, as I have not read any bee-periodicals since 1897.

A crack shot puts the question thus:

How far should one lead a cross-flying quail if the gun is swung as rapidly as the bird is flying, and the shooter is reasonably quick on the trigger? A Canadian apiarist once asked me how far one should lead a cross-flying foul-broody swarm with a McEvoy hot-blast smoker.

Santa Cataline, Cuba, Mar. 3.

[This seems to be quite in line with the previous article by Mr. Harry Howe; and it would look as if for the present, at least, American bee-keepers had better keep off the island until conditions are materially improved.—Ed.]



SOMETHING ABOUT USING EMPTY COMBS.
COMBS VS. FULL SHEETS OF FOUNDATION.

"Good morning, Mr. Doolittle. I came over to have a little talk with you about combs. Can you give me some idea in regard to them, how to use to the best advantage, etc., as I am a beginner in bee-keeping? Did you have all the combs you desired at first?"

"Glad you called, Mr. N. When I first began keeping bees there was no such thing as comb foundation, hence whatever comb we had had to be built from the start by the bees. My bees at that time would persist in building more or less drone comb, which I would not tolerate in the hives to any extent beyond a piece as large as the hand, therefore I was short of combs, and was often obliged to work colonies for comb honey with as few as six Gallup frames in a hive."

"How many do you now use?"

"Nine.. But in those days it was thought that a hive should contain at least 2000 cubic inches in the brood-apartment in order that the best success might be had."

"What success did you have?"

"My bees increased so fast, which, with my determination to allow little drone comb in the hive, kept me for years so I did not average seven Gallup frames to the hive, this being less than one frame more than half required to fill a hive of 2000 cubic inches; and for this reason I was compelled to lay the foundation for what is now known as "the contraction system." The success obtained by the use of these few *all-worker* combs led me to give the matter in print, and from such beginnings we have the contraction system of to-day, practiced by many bee-keepers who have their swarms in a brood-chamber containing only about half the comb space of those used by our fathers."

"How did you manage this comb-building matter?"

"As I wished to make the most of my bees, they were allowed to build comb in the brood-apartment of the hive till the yield of honey came on plentifully, at which time the sections were put on, after shutting the bees, by means of division-boards or dummies, on to as many combs as they had completed up to that time. Thus, in 1874 and '5 I obtained an average of over 100 pounds of box honey in each of the two years, per colony."

"What did you do with the drone comb you took away?"

"The drone comb was taken away before any bees had matured in the cells; and in this way I obtained my starters for the sections, filling some of the sections entirely full where I had enough of such nice white drone comb to do so."

"And you used these filled sections as 'baits,' did you not?"

"You have guessed it exactly; for these filled sections were placed in the center tier of sections for each hive, and in this way the bees were coaxed into the sections much sooner than they otherwise would have entered them."

"What did you do where frames were partly filled with both worker and drone comb?"

"Where frames were partly filled with drone and partly with worker comb, I bought up all the nice clean worker comb which I could find, from parties that killed their bees in the fall for honey, and from those which died during winter, often paying as much as 25 to 30 cents per pound for it; and, after cutting out the drone comb from my frames, I fitted worker in its place, thus preventing the bees from filling the same space again with drone. After this, if any I had bought was left, I fitted it in frames for use where most needed, often using pieces not more than four inches square, soldering them together, and holding them in place in the frames, with melted beeswax, till the bees fastened all securely together."

"Do you think such a plan would pay at this time?"

"In these days of comb foundation it is doubtful whether it would pay to fuss with

pieces of comb, even if they cost nothing, unless it might be by way of laying a stone of economy, as one that might be necessary, in the foundation for the future of any life which would otherwise tend toward extravagance. However this might be, I think that, to melt up fairly good combs, as some do, and buy foundation as some recommend, is very poor policy."

"Where we allow the bees to build their combs, when should it be done?"

"Much loss is always sustained by letting our bees build comb in the brood-apartment of the hives during the best of the honey-flow, unless it is new swarms having the hive contracted to a few frames. The time to build the comb is when honey is coming in moderately, not only as regards the saving of honey, but because more worker comb will be built when honey is coming in slowly."

"How about the new swarms you hinted at in your last remarks?"

"Early in my commencement in bee-keeping I was obliged to buy comb, as I told you, as there was no foundation then, nor could I buy combs built in the frames, or get my bees to build enough before the main harvest for them to rear brood in while at work in the boxes; but later I struck on the plan of giving my new swarms only five frames; and as soon as these were filled with all-worker comb I spread them apart, putting in each alternate space an empty comb, so that the hive was filled out in time for honey and bees sufficient for successful wintering."

"Did not five frames make a hive too small for a large swarm of bees?"

"If the swarms were too large to work profitably building these few combs, sections were placed around and over them, so they could work in these, thus losing no time to the bees. In these experiments I found that I could secure a third more honey from a swarm treated in this way than from one building the whole hive full of comb during the height of the honey-harvest, besides securing nearly or quite all straight worker combs in each frame given. There is nothing of more value in the apiary than *good straight* worker combs, except good prolific queens."

"From what you say, I judge good worker combs are of more value than I had supposed."

"Such combs are of *great* value, and should be looked after with care when away from the bees, and the larvæ of the wax-moth should not be allowed to spoil them, as very many of our bee-keepers so often allow."

"But is not comb foundation just as good or preferable?"

"Some seem to have the idea that comb foundation is preferable to frames full of comb. This, I think, is a mistake, for I know of no spot or place where they are as good, for the bees must consume some time in getting the foundation worked out to full combs, saying nothing of the expense of buying it, or the time taken in putting it into wired frames. To my mind, a nice straight worker comb, built true in the frame, from foundation or otherwise, is worth double the same amount of foundation."

In bee-keeping, as well as in any other business, prosperity comes only in husbanding what we already have, and being careful of the outgoes. Foundation is good in its place; but the sheet-anchor of bee-keeping is all straight worker comb; and if you have such, use them in place of having the bees build more, or of buying foundation.



WHY THE RECENT MICHIGAN FOUL-BROOD LAW WAS DEFEATED.

Referring to your recent article about the foul-brood law (and its defeat) in the last legislature of our State, I wish to say that I had much to do with defeating it. My reason for doing so is this: In my judgment we now have all the law needed on that matter. All that is needed is its enforcement. The law now provides for an inspector in *each* of the counties of the State. It seems to me this is much better than simply to have *one man* for the entire State. Wherever foul brood exists, have your agent appointed *on the spot*, or wipe it out. I think this anxiety to get the law changed to *one person* is that some fellow at the capitol may get a job—only this and nothing more. I wish you would publish the present law, of which I think I secured the passage, and see if you need any thing else. Enforce this, and all will be well.

HARMON SMITH.

Orleans, Mich., Feb. 20.

[In our issue for July 15, 1897, page 525, we give the full text of the foul-brood law to which you refer, and which has been on the statute-book since 1881. At the time that Mr. Hilton sent it to us (at our request) he said of it, "I consider it a splendid measure. . . . It has never been amended or repealed, and is to-day in full force." I have again read carefully the whole law, and consider it a very excellent measure for the suppression of foul brood. This law provides that, upon the petition of five bee-keepers, addressed to the judge of probate, the latter shall be required to appoint a competent commissioner, resident of the county, who shall make the necessary investigation, and receive for his services for each full day actually employed the sum of \$2.00, and \$1.00 for each half-day.

There may be, according to this law, a commissioner appointed for each county, providing, of course, the disease is supposed to exist in such counties.

There are some advantages in a law of this kind. It saves the expense of railway mileage of inspector to distant parts of the State, and, if the disease should be pretty well scattered, it might not be possible for one person to do justice to all sections. On the other hand, it might be said that it would be difficult to find in each county a bee keeper who would be thoroughly competent to decide when the dis-

ease was actually present in the hive, and how to treat the same. There are many competent bee-keepers, but only a few, comparatively, who understand how to handle foul brood. In favor of a law like that just now in force in Wisconsin, by which one inspector is appointed for the whole State, and receives \$4.00 a day and other expenses, it may be urged that this person can be and probably will be the best man in the whole State; and foul brood has scarcely ever made such headway in any other one State that one person could not get to see every affected yard.

The county plan is in force in Colorado, and I believe it is giving general satisfaction. The plan of having one inspector for the whole State is giving excellent results in Wisconsin. Taking everything into consideration, I believe I should be in favor of this kind of law; for an inspector who gave a large percentage of his time would make it *his business* to find foul brood wherever it existed, and stamp it out by the most approved methods. It would be a matter of pride to show *some results* from his labor.

All things considered, it strikes me that our friend Mr. Smith rather went back on his bee-keeping friends. The present foul-brood law has been in existence since 1881, and that notwithstanding the disease has been making headway throughout the State. Those who favored the new bill on the lines of the Wisconsin law probably felt that something better should be on the statute-books; for then one man would *feel the responsibility* of the situation, and *see that something was done*. I am inclined to think, friend Smith, that the bee-keepers of your State will be after you with a sharp stick; and on the other hand I can see how you acted honestly and from the best of motives.—ED.]

DO QUEENS LAY IN QUEEN-CELLS? WATER-BEES.

1. Do queens lay eggs in old queen-cells, or do bees move them there when they want to rear a queen? A few days ago I put a frame of eggs in a queenless hive, and on looking in later I found an egg in an old queen-cell that was empty when I put it in (they matured the egg to a queen).

2. Do bees have regular water-bees, or do all go for water? If they do, how do they water the queen and drones? CHAS. LONG.

Fowler, Cal., Feb. 16.

[1. Under some circumstances queens will lay in queen-cells; but I believe that, as a general rule, the cells are supplied by the bees, with eggs or young larvæ removed from worker-cells. The circumstance you relate is not an uncommon one.

2. I never supposed there were regular water-bees, although this may be true: Some bees in a colony will make a specialty of buckwheat, others of white clover, still others of pollen, and perhaps others of water. It is possible that all of these perform all the different kinds of work named. Some one made observations along these lines a few years ago, and the results of these investigations were

published; and, if I mistake not, the writer believed certain bees performed certain kinds of work—that in other words there was a division of labor among them. I would suggest those who have observatory hives make this a matter of observation. In order to arrive at any thing like satisfactory results, there should be only one nucleus or colony of bees in the locality.—ED.]

GREASY SECTIONS DUE TO THE QUEEN; A CASE IN POINT.

I have read the articles in the March 1st issue, on greasy sections. Having kept, for the past 20 years, from 50 to 200 colonies of bees, and most of them run for comb honey, I have had some experience "along that line," as Doolittle would say. I remember one colony in particular, the bees of which would insist on soiling the cappings of the honey, making it appear watery and greasy. This particular colony was a well-marked Italian, with a very yellow and prolific queen. All the honey in the brood-chamber had the same greasy appearance. As this was one of my best honey-gathering colonies I was loath to part with it; but it made no difference whether the flow of nectar was slow or fast, the honey had the same greasy appearance. I finally put on two sets of combs, and used them for extracting. The honey was very ripe and heavy, weighing fully 12 lbs. to the gallon. If any of the fraternity have any queens to dispose of because their bees do not make cappings with an air-space between the honey and cappings, I am willing to pay the cost of mailing and caging such.

Rochester, Mich., Feb. 7. J. M. KINZIE.

GREASY SECTIONS DUE TO CONDITIONS OF WEATHER.

I see "Greasy Sections" are being held up to view. Well, let us investigate. This is an interesting subject. Dr. McLean and I do not materially differ. I have not passed through anything but *hot dry* seasons, and, of course, could note nothing such as he speaks of in the mountains; but any thing that retards a honey-flow gives riper honey and will produce the result. Mrs. Barber says her "yellow" queen gives bees that get more honey in the same time, and white cappings. Well, that tends to prove my position; i. e., that the more rapidly the honey is gathered and capped, the less likely it is to be greasy, other conditions being favorable; but, on the other hand, we find the greater number of bee-keepers who say that the black bee caps honey whiter than the Italian. Now, all these different opinions have been more or less jumped to without careful, continued investigation, after taking into account all the conditions which I think are more varied in bee-keeping than in any other rural pursuit.

Kankakee, Ill.

W. M. WHITNEY.

SWEET CLOVER IN TEXAS; IS IT A "BAD WEED" ON THE FARM?

I had about 30 acres of my farm in sweet clover in 1898, and it paid me over \$3.00 per acre, which is a good rent for average land

here. I have about 28 acres this year, and I would continue it on my farm if it were not for my neighbors' bees, which get as much honey as I do or more. About the last days of May, 1898, the bees were without stores, very little brood, and quite weak; yet the crop of honey taken that year paid me over \$100, besides keeping it on the table all the time for six or eight in family, and the principal part of the crop was from sweet clover. It makes good pasture in early spring, and, if turned under after blooming, it will tell on a wheat crop.

Last summer, while breaking the clover land, I fastened a piece of domestic cloth on and above my disk plow, and caught quite a lot of the flying seed while plowing. I have been sowing the seed all around the fences on the farm. I prefer raising honey instead of weeds and bushes.

J. H. RODERICK.

Dodd City, Tex., Feb. 28.

CONTROLLING SWARMING AND AVOIDING INCREASE.

I have a few hives of Italians (less than half a dozen), and run for comb honey. I try to go "by the book," and the book is Root's A B C. Now, as no increase is wished for, please tell me what is the best way to avoid increase. In early spring, when I get the bees to breed they get very strong; and instead of going to work they swarm out about April 1. This is not desired.

W. P. DANNER.

Beaufort, S. C., Feb. 16.

[I would advise you to catch or kill your queens at the approach of the honey season. This will prevent swarms, and at the same time check brood-rearing and thus avoid rearing a lot of bees that would be useless consumers later on. But after the queens are destroyed, it will be necessary for you to go through the colonies carefully to cut out all the queen-cells in eight days. And in eight days it will be necessary to perform the same operation again. In order to get every cell it may be advisable to shake all the bees off the combs, otherwise you are liable to miss one when combs are covered with bees. For particulars regarding this, see "Prevention of Swarming," in the A B C of Bee Culture, which you have.—ED.]

CLEANING MOLD FROM EMPTY COMBS.

Will you kindly let me know which is the best way to clean empty combs (for extracting) of mold, so that they could be used again? Only a part are moldy, and this not much.

Escondido, Cal., Feb. 23. L. MARNO.

[If combs are a little moldy, ordinarily no harm will be done. When you need them, set them right down in the center of the brood-nest, and the bees will soon clean them up sweet—much cheaper than you can, even if you could do it. Combs should ordinarily be stored in a dry place, subject to a freezing temperature in winter. This will kill the moth-miller eggs and larvæ, if there are any; and if they from that time are kept in a tight box

or room they will be ready at any time, sound and good.—ED.]

DRONES IN EARLY SPRING; DO THEY WINTER OVER, OR WHERE DO THEY COME FROM?

In setting my bees out of the cellar on the first day of March I saw as many as fifty drones. They came from several different hives, and seemed perfectly at home. To-day was a nice warm afternoon, and there were a good many flying. I do not remember seeing any accounts of drones being wintered over, and thought it might be a matter of some interest. My bees did not kill off the drones last fall, or at least not nearly all of them, as many were flying every warm day in November.

A. A. BONNEY.

Tygh Valley, Ore., Mar. 5.

[As a rule, drones in hives with queens are killed off just as soon as the honey-flow ceases; for the bees seem to recognize that they can not afford to keep around a lot of useless consumers; but a month or so after the wholesale slaughter there will be a few more drones reared, perhaps a dozen or two in a few colonies, and these are usually left unmolested. It is these chaps that are allowed to go through the winter; for the bees seem to recognize, also, that if the queen is lost there will be no drones during the coming spring for the young queen. But drones are reared, even in winter—that is, providing it is not so cold as to prevent the rearing of ordinary worker brood. Here and there will be a larger cell, and in it will be a drone grub along with the other worker larva. These drones are not molested, and are allowed to remain unless stores in the colony are very short; in which case the bees will be liable to lead their "dads" out of the hive "by the ears"—at least they sometimes look as if they were doing that very thing; for there will be two or three workers tugging at one poor unfortunate drone. He is then held at bay just at the entrance, and, no matter how he struggles to get in again, he is ruthlessly pushed back by the mere force of numbers against him.—ED.]

HONEY RESOURCES OF CALIFORNIA; AN EXAMINATION OF THE STATE BY COUNTIES.

After some twenty years spent in traveling through the central and northern part of California it strikes me that my observations in regard to the section as a location for prospective bee-keepers might help out friend Martin's article.

Down in the San Joaquin Valley is a large tract of alfalfa land stretching from Kern to Merced Cos. In Fresno Co. the field is over-occupied (at Selma). In Tulare Co. there is still a large area unoccupied. Going north there is a section in Sacramento, Placer, Sutter, Butte, and Yuba Cos., where a limited number of apiaries could be started. These are all valley locations. Back of these are the mountains. In the hills of Fresno are a number of small openings; Mariposa the same. In Tuolumne a large number of bees are kept in one section. The higher altitudes are with-

out bees. In Calaveras Co. few bees are kept. There is a small strip along the rivers, in the lower end of the county, that would support several small apiaries. Amador Co. is better, especially in the valley—more alfalfa. Eldorado Co. has a few good openings in the mountains. Apiaries lower down have not been a success. Nevada Co. has but few bees, but an excellent local market. Several small apiaries could be run to a profit in it. Sierra Co. is mostly mountains. What few apiaries are located in the county do very well. Plumas Co. (the Switzerland of America) is a paradise in summer. Bees will do well there. Lassen Co. is similar to lower California, owing to its being partly covered by the desert of Nevada. Sage and clover grow in great abundance. In the San Joaquin and Sacramento Valleys you are right on the line of the main railroads. Mariposa Co. is away from the railroad. Tuolumne, Calaveras, Amador, Eldorado, and Nevada Cos. have branch lines extending into them. Sierra and Plumas Cos. are off the line. Lassen Co. has a branch road, now being extended.

During the summer months it is as hot in one part of the State as another. In winter the mountain counties have more or less snow, especially Lassen, Plumas, and Sierra. You can go "from snow to roses" in an hour's travel in any of the counties bordering the mountains. The flora is varied, with an altitude of from 200 feet above sea-level in the foot-hills to 4000 feet but a few miles above. All climates and flowers can be found.

California is a very poor market for honey. The bulk of it must be shipped. Since the California bee-keeper must pay freight on his supplies from the East, and on his honey to the East, it is evident that a location east, near the base of supplies and market, will yield a greater profit than can be realized here.

If we could have a "good" year every year it might be possible to produce an excess sufficient to more than counterbalance the freight charges; but with only one good year in five the East has the best of the situation. Why doesn't some one go north, say to Montana, where people eat honey, have the money to, and do, pay good prices for it?

Murphy's, Cal. E. H. SCHAEFFLE.

STUNG TO DEATH; A CORRECTION.

On page 89, Feb. 1, you published an article headed "Stung to Death by Bees," which is far from the actual facts in the case. The facts as told me by a brother-in-law of Mr. Carson are these. Mr. Carson went to his apiary before breakfast, to do some work with his bees. He was stung four times—once on the temple, ear, wrist, and thigh. He went to the house and requested his wife to get a veil, as the bees were cross. In a few moments he said he would go outside, as he felt faint. He went out and sat down on the porch and died there. There was no sulphur burned. Mr. Carson had heart trouble, which, combined with the stings, upon an empty stomach, the doctor says, was the cause of his death.

Alliance, O., Feb. 17. G. E. MARTIN.

SALABILITY OF SECTIONS; NOT HOW GOOD, BUT HOW CHEAP; DEAD BEES IN CELLAR-WINTERING.

A good deal has been said of late on the subject of square vs. tall sections, and some very good arguments in favor of both kinds have been put forward. I have kept bees for over 35 years: have produced tons of honey made in all sorts and sizes of boxes, from the one holding 10 to 15 pounds down to the $4\frac{1}{4} \times 4\frac{1}{4}$ section. The first single-comb box I ever saw I made and used myself. Most of my honey has been peddled, very little ever going to commission men, and none in later years.

I have yet to find a customer who will pay any more for a section of honey on account of its "good looks;" but I recall many who would take a "homlies" lot if they could get it a little cheaper. Given a tall and a square section of the same quality, the customer may take the tall one if he can get it at the same price; and the wholesale purchaser, if offered a lot of each, will take the one he can buy at the lowest figure, and will take both lots at the price of the cheapest.

When you find a man who will pay me a better price for a section of a certain shape, he can have all of my custom if he wants it. The fact is, in my experience consumers do not care so much for the looks of the article, provided the quality is the same, as they do for the price.

The question is asked by some one, "How many dead bees will be carried from a cellar in which, say, 100 colonies of bees have been wintered?" My experience is, there will be from 60 to 90 quarts for that number of colonies, and I might give you a long dissertation in words and figures as to how I arrive at that conclusion. I now have 83 colonies in the cellar, and I have never seen as few bees on the cellar bottom at this time of year as there are to-day, and they were put there the last day of November; but outside it is the stormiest day we have had during the present winter, and we all know that, from this time out, they will die off much faster than in the past.

Lawrence, Ill., Mar. 6.th J. L. ANDERSON.

[It would appear from the figures above given regarding dead bees that my estimate of the number that might be found on the cellar bottom, as given on page 804, for 1899, and page 179 for this year, was not very far out.—ED.]

1. What is a good way to introduce virgin queens to nuclei, and about how many will be accepted?

2. What is the depth of the Langstroth frames you make—I mean from top of top-bar to bottom of bottom-bar? J. C. C.

[1. I would introduce virgin queens just the same as I would ordinary laying ones; but virgins are always harder to introduce, and a larger proportion of them will be lost as compared with those that are fertile.

2. The standard Langstroth frame is $9\frac{1}{2}$ inches deep, outside measure.—ED.]

EVERGREENS FOR WINDBREAKS FOR APIARIES, GARDENS, ETC.

Mr. Root.—As you have had experience in planting an evergreen windbreak, can you give me some information about it? I should like to plant one to shelter house and bees from the north and west; soil is sandy, running out to heavy loam. It is difficult for me to get trees from the woods. Would it pay me to go a considerable distance, rather than buy from a nursery?

What kinds would you advise purchasing, and what size of tree? How many rows are necessary? how far apart for the rows, and for the trees in the row? and is it necessary to cultivate them for a few years?

FREDERICK H. CLARKE.

Coleman, Mich., Feb. 21.

[Friend C., I would not get evergreens from the woods, even if they were near by, because you can get transplanted trees grown and trained in the nursery so much better and so much cheaper. On page 190 of GLEANINGS for March I you will find an advertisement of one of our largest and best dealers in evergreens. Trees a foot high cost only \$3.00 per 100. I think our own cost about \$5.00 per 100; they were planted about 20 years ago, and are now almost too large (40 to 50 feet high and some of them over a foot through), if any thing. We have tried them at different distances. Only one row is necessary if you let the branches come out clear down to the ground, which they will do in a very few years. The Norway spruce is very hardy, and a very rapid grower. We have not lost one tree in 100, and these would not have been lost had not water been allowed to stand around their roots. Trees 10 feet apart in the row (as ours are) will make a windbreak for bee-hives rather quicker than if a rod apart; but in a few years, where placed so closely, it will bother you to get through them if you should happen to want to. One who has not tried it would hardly realize what a difference it makes during a windy time. One can work in comfort when shielded by evergreens. when it would be very tedious if not dangerous to undertake the same kind of work where the wind has full sweep. A windbreak around a home, the barns, poultry-house, etc., is not only a great comfort, but a positive saving in feed for stock as well as a comfort to the owner. The nearer you put the trees, the sooner they make an efficient protection; but they are more apt to be crowded so as to die out as the trees get older.—A. I. R.]

ECHOES FROM THE WISCONSIN CONVENTION; TALL SECTIONS.

Wisconsin is not and has never been any great comb-honey producer, most of her bee-men having become convinced that markets, prices, and the amount of product being considered, extracted pays them better. Nevertheless, there was interest enough in comb-honey production to bring out a lively discussion on the merits and demerits of tall sections, 4×5, as compared with 4¼×4¼ inch. Although your humble servant defended the tall section as

best he could, there seemed to be a decided majority against them. But when a show of hands was called for of those who had tried them the number was small indeed, and there seemed to be a confusion among the members between no-beeway sections and 4×5 sections when this point was not really under discussion.

The points claimed for tall thin sections were—better finish, quicker sealed over, hence more product; also looks better; therefore will sell for more. The reasons urged against them were—cost of extra fixtures, cost of extra foundation, and a general unwillingness to help supply-dealers.

KEGS AND BARRELS V. CANS.

This came up for a tussle, and here, as well as on the tall sections, Wisconsin would have none of the cans. The strong point against cans was cost, and inconvenience of handling when full. Dealers are unwilling to pay more for honey in cans than in barrels. These arguments are all valid; but, on the other hand, the leakage and loss from soaking in the wood is no small matter on barrels and kegs, and I am sure that dealers who supply honey for family use would soon appreciate the difference between liquefying that in cans and that in barrels.

Moral.—Know your customer, and suit your package to your trade.

There was one entirely new feature introduced into the convention—a debate on the following:

Resolved, That contraction is better than expansion for spring management of bees. Affirmative, Harry Lathrop; negative Jacob Huffman. The debate was quite spirited and interesting from first to last. The affirmative claimed that all weak colonies should be tucked up close—i. e., contracted and let alone, while the negative claimed that they should be expanded by brood from strong colonies. Successful bee-keepers adhered to both sides, which shows that the same result may be attained, and the same point reached, by entirely different routes. The point here aimed at is strength of colonies, and whether this can best be attained by bringing strength from others at the expense of the colony robbed, or to let them develop strength from within.

At the close of the debate Secretary France brought down the house by presenting the contestants with a tray of honey-cakes made by a Wisconsin biscuit company. May be he thought they needed refreshment after their exhaustive efforts.

One other feature which I am sure you and all friends of bee culture will be pleased to know is that the whole convention joined the National Bee-keepers' Association. May it live and prosper until fraud, adulteration, and foolish prejudice are all wiped out.

Richland Center, Wis. C. A. HATCH.

I commenced keeping bees in the spring of 1886 with one colony, for which I paid \$5.00. I have been strictly in the business ever since. I now count my colonies by the hundred, and sell honey by the ton.

F. B. JONES.

Pease, Minn., Mar. 8.



EIGHT extra pages this issue.

NO COMB HONEY IN THE MARKETS.

THERE never was a stronger demand for comb honey than now. In fact, we do not know where there is any to be had, either of this year's crop or last. The universal reports of good wintering give us encouragement to believe that we shall have at least good strong colonies, and good markets for comb honey. Now, then, if we can have the right kind of season with nectar we shall be "in clover" sure.

THE NEW-YORK SPRAYING LAW.

In my editorial, page 178, March 1, with regard to the reported attempt to change the spraying law of New York, I made Mr. Marks say that the amendment provided that experiments might be made by experiment stations and by individuals. Mr. Marks calls my attention to the fact that, in his original letter concerning the matter, he said nothing about "individuals." I therefore make this correction.

I am much pleased to say, however, that the amendments have been so amended that there will be no objection to the bill, if it passes, on the part of bee-keepers; but while legislators are in session, it behooves us all to watch and see what they are doing. That is the only way we can prevent unnecessary and often vicious legislation.

CUBAN BEE-KEEPING IN A BAD WAY.

THE American bee-keeper who is thinking of migrating to Cuba to carry on his chosen pursuit where he may have thousands of acres without danger of overstocking, and where, perhaps, he indulges the fond hope that he may be able to produce honey and deliver it to the American markets for half what he can produce the same grade on American soil itself, would do well to read carefully two articles in this issue—one from Harry Howe, and the other from Mr. George Rockenbaugh. From several sources outside of the parties named I learn that foul brood has gained a terrible foothold on the island, and it will be many a year before bee-keeping, probably, can be conducted on a safe and profitable basis. At present, American bee-keepers need not fear Cuban competition—that is, if we can rely on what several correspondents have said.

THE CONTAGIOUS CHARACTER OF BLACK AND FOUL BROOD; THE IGNORANCE OF BEE-KEEPERS.

At the New York State convention, Mr. Benton, who had been pretty well over the districts affected by black brood, laid particular stress upon one point, and upon which too much emphasis can not be placed. It was,

that he found that some bee-keepers whom he had visited, and in whose apiaries this disease was found, seemed to be utterly ignorant of the character of contagious diseases. They did not realize the importance of keeping combs and honey away from affected colonies where healthy bees could not get at them; nor were they particular about disinfecting utensils and their hands after handling the diseased colonies. The same precautions necessary to prevent the spread of foul brood should be observed in the case of this disease. Mr. Benton recommended rubbing vaseline on the hands just before beginning work with the bees, and then washing afterward in a solution of carbolic acid and water; or formaldehyde and water, using one per cent of the chemical.

NIVER ON GRADING; POKING A LITTLE FUN AT THE EDITOR.

THE following letter, just received from Niver, the grading man and honey salesman, will explain itself:

Friend Ernest:—When glancing over GLEANINGS for Mar. 15th my attention was called to page 225, and the pictures of sections adopted by New York bee-keepers as their guides for grading. President Marks evidently understands the system, and has a good lot of pictures—better than the ones I presented to the societies last year; but I am astonished—not to say shocked at the comments E. R. Root, "ye editor," indulges in on that same page. Just study on this boiled down concentrated extract of clearness:

"There is just one difficulty with this picture-grading. It is very difficult to select three sections, the poorest of their grade, each of which shall be an average of the poorest."

Say, Ernest, just try it on a case of No. 2. Hunt out the poorest section in the whole case that will also be an average one. If it's an average section it will necessarily be better than the poorest, won't it? Just imagine the two "Docs" (Miller and Mason), and myself (we would be three of a kind—all like to laugh), watching you struggle with that problem—or paradox—of making a poor section and a better one equally good!

The average of a No. 2 would be at least half way to the No. 1. The average of No. 1, in like manner, would be half way to the "fancy," while the "fancy" would have nothing poorer than the section shown in the picture, and run from that to the extra fancy or the "stuffed prophet," as Morton used to call them.

This grading by sample is very easy in practice, and can be made fairly uniform from the specimen pictures, if we all agree to sell nothing poorer than the No. 2 represented on page 225. Any bee-keeper can select the other two samples, after once deciding what No. 2 shall be, and this picture is all right to guide him in that important decision.

I contend that it is of more profit to the bee-keeper, and to the business as a whole, to extract every section that isn't fully as good as the No. 2 shown on page 225 (the one on the right-hand side, of course, I mean, not the middle one, which is a No. 1).

Groton, N. Y., Mar. 21.

S. A. NIVER.

Look here, Niver, you are altogether too literal in your construction of language. I grant that the sentences under consideration from a technical standpoint might be considered paradoxical. What I meant by the "average of the poorest" was that there might be in one grade a dozen or so sections which we might call "poorest." One would be poor from one cause and another from some other, and so on each of the whole dozen would have some serious defect which would class it with the poorest of the poor. But the point I tried to make was that, if we grade by pictures and select the poorest of each grade, we should select as our sample one out of the whole dozen

that would represent fairly the *defects of all the poorest*.

You still think I am inconsistent and paradoxical, eh? Well, now, suppose you, Dr. Miller, and myself, and a few others who are always at loggerheads on this question, each take what we consider the poorest of the No. 2 grade. We might have different notions of what constitutes the poorest, and we therefore might each select a section all different. Suppose that, instead of three of us, there were a dozen, and each had a different section, all of them "poorest," but just good enough to be dumped into the No. 2 grade. Now, then, what I meant was that whatever section was used as a pattern should be a fair average of our selection. See?

FIGHTING FIRE WITH FIRE; BEE-KEEPERS
COMBINING THEIR INTERESTS TO MEET
THE COMBINATION OF ORGANIZED
BUYERS OVER THE COUNTRY.

IN view of the fact that great trusts have been formed, so-called, and that men of a trade have combined to protect their interests, it seems as if it were a matter of self-protection on the part of bee-keepers of different States to pool their interests. I am not advocating trusts or combinations or pools; but the bee-keepers of Colorado and California have been and are placing their combined products in the hands of a secretary or manager for each State, with the most gratifying results. The manager of each exchange fixes the price of honey for the whole State; watches the market; looks after the interests of the associated members in a way they could not do individually—prevents individual bee-keepers from cutting prices against each other for the sake of securing trade, and prevents avaricious commission men and large buyers from coming in and getting choice car lots at a low figure, thereby forcing all other bee-keepers to sell at the same low figure.

I happen to know that Mr. Rauchfuss, manager for the Colorado organization, has not only fought against large moneyed firms, but has had backbone enough to tell them, when they have tried to "bluff" him, to go ahead and do their worst. One concern who, having bought one or two cars of honey at a certain stipulated figure, I am told, tried to make him admit that he had *agreed* to sell the rest of the honey at his disposal for the same money. When he insisted that he had not entered into any such agreement, the traveling-man threatened to sue the association. He told him to go ahead. It is needless to say that the buyer brought no suit, but finally paid Rauchfuss' price, which meant a good many more dollars to the individual bee-keepers of Colorado, with the further result that prices in general were shoved upward, as they should have been, with the probability they will be held there, even if they are not shoved up higher. There can not be a doubt but that prices would be lower in Colorado to-day but for the fact that the intelligent, progressive bee-keepers of that State placed their honey in the hands of a competent man to do the business for them. At another time, if I am correctly informed,

a certain buyer went through the State to get all the honey he could, stating that he could buy at less figures than Mr. Rauchfuss offered. The latter, having a list of the members of the exchange, sent out notices to all the members, explaining the situation, and advising them not to sell at less than a certain figure. Well, when Mr. Buyer went around to buy at his own price he found that he had *run against something solid*. He could not budge one of the members; and the result was, he bought at Mr. Rauchfuss' price, which was considerably in advance over the figures he offered.

There is a great deal of so-called bluff in the business world, and it needs to be met by business experience and integrity and by business backbone of a kind that knows its rights and legal limitations.

If buyers are organized to get honey as cheaply as possible, how can producers working *independently*, and often *against each other*, hope to get good prices?

I do not know that it is possible to form honey exchanges in any of the States except where large amounts of honey are produced. I should not think such an organization in Ohio, for instance, would be practicable; but in New York, Arizona, and Utah, where *large amounts* of honey are produced, a good deal might be done, with the general result that it would tone up prices in those States where smaller aggregate yields are produced.

I am not advocating high prices to the detriment of poor people; but every honey-producer knows that honey has been sold at a lower figure for the last few years than it ought to have been. The business of bee-keeping requires skill and good management, and, unlike many other occupations, it is very uncertain. In view of this, there ought to be financial returns commensurate with the labor, skill, risks, and capital involved. In other words, it ought to command as good wages as other avocations requiring a like amount of brains and time. There is a good deal on this subject elsewhere in this number that is to the point.

ADULTERATION IN THE EAST; THE NEED OF
PURE-FOOD LAWS, BOTH STATE AND NATIONAL; A WARNING.

THE following extract from a private letter from a bee-keeper who is well up in the honey business, and who understands thoroughly the buying and selling of honey, tells a rather sad state of affairs regarding the Eastern markets. Read it carefully, and then write your Senators and Representatives, urging them to support any national pure-food measure that may come before them. At the pure-food congress which assembled during the fore part of February, preparations were made to draft and present a bill which will probably come up for consideration in both House and Senate in the near future. Do not fail to write at once. The extract from the letter, omitting all names, reads as follows:

Gentlemen:—The writer was in New York yesterday, and found the extracted-honey market in very bad condition. Messrs. — have 2500 double cases in storage, and \$8000 borrowed on the same. Messrs. — have a big stock consigned, and Mr. — has also a

good supply. It appears the National Biscuit Co. have not bought yet this year; when they do it generally makes a big hole in the market. There is a new enterprise started on the east side in which they are adulterating by the carload honey which will granulate in three days. It has the appearance of and tastes very much like honey; has about 10 per cent of the pure article in it. Twelve carloads have been turned out in the last 60 days. It sells for $5\frac{1}{2}$ cents per pound.

The National Bee-keepers' Association is doing every thing in its power to stem the tide of adulteration of honey; and we hope that, in the near future, it will present some interesting and startling facts. The condition of affairs revealed in the extract above should merit the careful consideration of every bee-keeper—especially those who have not joined the National Association, one of the objects of which is to make the mixing of glucose dangerous and unprofitable. Membership costs only a dollar, and one does not know how far that dollar will go when combined with other dollars from bee-keepers far and wide.

The state of affairs as indicated above shows that extracted honey may be a glut on the eastern market this coming summer; and if bee-keepers in that portion of the country are wise, they will turn their attention largely to the production of *comb* honey, which can not now be bought in the open market for love nor money. It is gone, absolutely; but pure extracted honey is a glut in the same markets, just because twelve carloads of the adulterated stuff have been turned loose within the last sixty days, and which sells at $5\frac{1}{2}$ cts.

I am placing this letter, giving the full facts, names and address, before General Manager Secor, of the National Bee-keepers' Association, hoping that he may be able to do something to stop the rascals who are perpetrating this wrong on the bee-keepers of the East.

CAMERAS FOR HALF-TONES.

ON page 141, Feb. 15, I criticised a paragraph of Mr. Hutchinson's in the *Bee-keepers' Review*, relating to the above subject, where he said that an ordinary kodak was of but little value for use in taking half-tones, for the reason that the lens was of a universal or fixed-focus type, and that, therefore, the picture thrown on the plate would be only "passably sharp." As I had used quite a number of this class in GLEANINGS, taken with the universal-focus kodak, and as some of them, I thought, were excellent, I took our brother-editor to task. The latter, instead of replying in his next number, laid the whole matter before the editor of the *American Amateur Photographer*, Dr. John Nicol, an acknowledged authority on cameras and lenses. Among other things the doctor says:

Mr. W. Z. Hutchinson:—A lens at fixed focus would give as sharp an image as one that you focused, but only of such objects as were at the point for which it was fixed. All lenses have a point at and beyond which all things are in fairly good focus, the distance depending on the length of the focus and the size of the stop employed. The shorter the focus and the smaller the stop, the nearer that distance. So called fixed-focus lenses in cameras are generally placed a little within that distance, as the eye can not distinguish between lines less than $\frac{1}{100}$ of an inch apart, so that with, say, a 5-inch lens, every thing at and beyond 25 feet will be to the ordinary eye in fairly good focus.

But, as already said, only one thing, or one plane, will be in perfect focus, and all nearer and beyond only a compromise; while with a lens that you can focus, or, as you say, with your head under the cloth, you can focus, at any distance, and that not a compromise but a perfect focus.

This I referred to the Eastman Kodak Co., who, though an interested party, stated that neither Mr. Hutchinson nor myself had got at the real root of the matter, and that "Dr. Nicol came very near putting it plainly. Theoretically, Mr. Hutchinson and Dr. Nicol have entirely the best of the argument. Practically, fixed-focus cameras are the most desirable within certain limits. . . . Our experience, then, has taught us, owing to the mistakes liable to be made in focusing, . . . the amateur is more certain to get good results with a fixed-focus camera, provided the size of the picture is not greater than $3\frac{1}{2}$ by $3\frac{1}{2}$ Dr. Nicol states in his letter, 'The eye can not distinguish between lines less than $\frac{1}{100}$ of an inch apart, so that, with a five-inch-focus lens, every thing will be to the ordinary eye in very good focus.' Now, so long as it is in focus to the eye, what is the use of microscopic definition?"

I should be glad to publish the whole of the correspondence in which Mr. Hutchinson and myself have been greatly interested; but as we are both publishing bee-journals, the whole text of the correspondence, probably, would not be interesting to bee-keepers, and I have therefore endeavored to give the gist of the whole.

In doing so I hereby acknowledge that Mr. Hutchinson, from a theoretical standpoint, was more nearly correct than I; and while I use an adjustable-focus camera for most work, yet there are certain conditions, times, and circumstances, when I can use a small fixed-focus camera, and get some beautiful effects—something that could not be secured at all with the ground-glass tripod focusing-cloth camera requiring an expenditure of five or ten minutes to adjust the focus, etc. Some subjects in their best poses remain so for but an instant, and their unconscious bearing, not expecting to be photographed, gives to them the very life and beauty that can not be found in other poses where the subjects know that they are under the scrutiny of a camera.

I HAVE on hand several drawers full of good manuscripts, some of which I shall keep over till next winter, when they will be in season, and others will be held to await such time as we can find room for them. Still others may never be used. Keeping in mind the greatest good to the greatest number, I shall endeavor to use all of the best thoughts and experiences that are sent in.

REPORTS still show that bees are wintering well generally over the country. Only two letters speak of bad wintering—one for a district in Pennsylvania, and the other for a large portion of South Carolina. With these two exceptions, during the 15 years that I have had to do with this journal I do not remember a time when the prospects for good wintering were any better if as good.



For God so loved the world that he gave his only begotten Son, that whosoever believeth in him should not perish, but have everlasting life.—JOHN 3:16.

In our last Home Paper I said I felt sure that God did not call me into the business of growing flowers for sale. I meant that I felt sure he does not desire me to use the remaining part of my life in that way; and I am impressed that he is not calling me into any sort of business such as I have been engaged in all my life. The greenhouse is all right for recreation, but it is to be my play and not my serious work. Well, if I feel his voice directing me plainly what I shall *not* do, what is it he wishes I *should* do? My health is unusually good. I have lots of energy and zeal, and I have unusual strength of body. When I get on to my wheel now during these spring days it seems to me as if I could ride 100 miles in a day on a good road, without much trouble.

How shall I use my energy of both brain and muscle? Well, friends, this very thing has been my prayer of late. What would God have me do? or, if you choose, what would Jesus have me do, as our friend Sheldon has expressed it? And, by the way, may God be praised that Bro. Sheldon has been enabled to express his grand thoughts to almost the whole wide world. Well, the thing that impresses me just now more than any thing else is that I should use all the influence I possess, at home and abroad, in protesting against the starvation that is going on in India. Sheldon tells us in his daily that 50 millions of people are affected by the famine, and that something like 5 millions are on the verge of starvation even now. These figures are so appalling that Young America (and Old America also) becomes discouraged and overwhelmed, and inclined to say we can not do *any* thing, and that it is not our fault, any way. Oh! but it *is* our fault. It is a burning shame on the present age that *anybody* should be starving for food in this *whole wide world*. We are responsible, every one of us. We have enough and to spare; in fact, for the last year it has seemed as if people were studying up ways and means to waste money and throw it away. See what I have said in another column about sending money to the different kinds of "healers." See again my allusions to the strong-drink traffic. We all know, without being reminded, that more money is paid out in our land for intoxicating drinks than for bread. This was true when the reckless waste of money in this direction had not assumed its present alarming state. I think I am safe now in saying that harmful drinks cost more than necessary food. Our missionaries are honest, trustworthy people. No one, I think, questions this for a moment. They are devoted followers of Christ Jesus, and will handle safely and wisely every copper entrusted to their care. They have no desire to get rich; in fact, they know nothing of riches. Nobody

ever heard of a rich missionary. Their lives and all they have are given freely to helping humanity. Their statements are true. Their appeals to us are right. With the present advanced state of civilization, with the wonderful gifts a good and wise God has, within a few months, placed within our hands, there is certainly no need of starving anywhere on the face of the earth. If there are not railways enough to carry provisions to the people, let us make them. If there are people in any part of the world too ignorant to make storage-reservoirs to save the water, let us show them how to do it. Let the different governments set them to work on these reservoirs, and pay them wages enough to keep them from starvation. Let the millions that are devoted to war (and may I whisper right here the army "*canteen*") be used in public works, first to keep the people employed right off, and, secondly, to furnish them water, and teach them irrigation so they can grow crops in spite of long months without rain. I should like to go to India myself. I should like to take some of the able men of our own land, and have them start these things going. If I could save more people from starving by leaving every thing, and going to India just now, I would do it gladly and willingly. I wonder if there is a millionaire who reads GLEANINGS. If so, can not my poor humble voice induce him to feel some enthusiasm in this work of relieving the starving?

Dear brother, I am not thinking about the *men*. They can struggle and die, if need be; but I am thinking of the women and helpless children. They are out of water as well as of food. They have been obliged to desert their homes in the vain quest of both. Women and children lie dead and dying along the way. Mothers give birth to children, under bridges and along the wayside, without shelter; and these things are so frequent that nobody pays any attention. Parents, crazed by the tortures of famine, *murder* their children; and, worse still, sell their little girls to anybody who wants them, for any purpose whatever, for a mere pittance. Let me give you just one illustration—one incident among thousands.

A mother decided her little girl had better die at once by drowning than to suffer the torture of prolonged starvation. She took the child down to the edge of a pool, and tried to drown her; but the girl guessed what the mother was trying to do, and begged so piteously to be permitted to live, promising her mother she would never trouble her any more, and never ask her (her own *mother*) for a crust of bread, that she finally let the child go. The girl made her way to a missionary camp and told her story. But what can the missionaries do, not with hundreds, not with thousands, but with *millions* who are in a like predicament?

Perhaps you think I am getting a good way off from my text; but I assure you I have it in mind. One day while reading my mail, and getting a glimpse of the way the Whisky League with its small number (comparatively) have overwhelmed and sunk in ruin and degradation thousands in spite of the *majority* of

temperance people and Christians in the State of Ohio, while reading some of these things I came on to a letter telling of the starvation in India; and I mentioned the case of the little girl whose mother was trying to drown her. A mother, and a very good friend of mine, heard me tell about the little girl, and she said she did not blame the poor starving mother so very much, and added something to the effect that children were better off out of the world than in "such a world as this." Dear friends, Satan is opening up a new scheme of his right along in this very line. Even here in America, where, I might almost say, no one ever lacks food, mothers have been *murdering* their children, giving, as an excuse, they wanted to save them from the misery that may be before them. Well, this friend of mine, woman though she is, rather reflected on the wisdom of God in making such a world, or, if you choose, in permitting people to come into it, only to starve to death by the millions. I have just got another letter from that sister of mine whom I quoted in our previous issue about the flowers. Permit me to copy a single sentence: "There is one thing that puzzles me much. Why does God allow so much suffering through famine in India?" Many good people, perhaps Christian people, have thought of this very thing. It has stumbled me, I am free to admit, not a little. Now may God give me grace and wisdom when I attempt to answer such a question. Dear Christians, fathers and mothers, let us beware how we lose faith so as to criticise the great God above. If we should let go of his strong arm, and lose faith in the Bible promises, we might almost as well all commit suicide. God forbid. Why, the thought is just awful. Since the world began, there never was a time when the great Father above was showering such wonderful, such munificent, such bountiful gifts on his children as just now. *He*, in his infinite love, has given the United States enough to keep the whole 50 millions in India from starving. Our millionaires have the money; and from some illustrations we have had, some of them would hardly know it is gone; but notwithstanding all their wealth and wisdom of a certain kind, they are yet to discover that *real happiness* and true enjoyment can not be *purchased*. If their money was spent in wisely benefiting their fellows they might find some pleasure in life. We are told that Carnegie has said, "It is a disgrace to die rich." I hope he will remember it, and I believe I will write him a letter reminding him of his saying, and asking him to remember starving India.

Well, now, for the text. *Does God love the world?* Why, most assuredly he does, and with such a love that he gave his only begotten Son. Dear father and mother, when you love any person or any people so much that you would give your only child to suffer and bleed and die for their sins, your love could not longer be questioned. God knows humanity better than any one living. He knows of the suffering, and it is on *account* of suffering humanity that he gave this only Son. He gave him, not only that we might have food

to keep us from perishing, but that we might have *everlasting life*. Oh! this is true, every word of it. It is the greatest truth the whole wide world contains; and the relief from the famine, the relief from the ravages of strong drink, the relief from greedy millionaires, must come through Christ Jesus. There is no *other* help. Breaking up the saloons by law is a good thing; but such an act can not for an instant compare with converting the sinner to Christ Jesus. A man in our employ got into intemperate habits—or, rather, he revived old intemperate habits. At a meeting of the board we decided we should have to give him up and get rid of him. But no one else could be easily found to fill his place. One of the boys suggested making a determined effort to win the man to Christ Jesus. He was profane as well as intemperate, and the idea seemed almost ridiculous. Well, this young member of this firm plunged right into the work of making the man a Christian. He got the ministers enlisted in the case, hunted up all the facts, went at it as a detective would go to work to win a thousand dollars reward offered. It was *not* a thousand dollars that the young member of the firm was working for, however. It was to save a soul. Dear friends, that man to-day is one of the most promising and useful men in our establishment. He is not only free from strong drink, but tobacco also. A foul word now never passes his lips. He is reading his Bible, going to church, and praying every day that God may help him to be clean and pure. Which course is best worth our while? Which course will be worth most to the world—trying in vain to keep strong drink out of the man's way, or converting him, *body and soul*, to be a follower *henceforth* and *evermore* of that only Son whom God gave to the world to save the world from just such troubles as these? I need not argue the case; you all know I am right. The worst skeptic who reads GLEANINGS, in fact the very ones who have written me ugly letters because I so continually point to the Lamb of God that taketh away the sin of the world, you all know I am right. Christ Jesus will stop the famine in India. The spirit of Christ Jesus in the hearts of men will stop the war in Africa, and will divert the millions that it has cost, and *is* costing, to the poor mothers, the little children, and the little girls. Now, how much will *you* do for Christ Jesus? You say you believe I am right. You acknowledge it in your inmost soul, even if you do not say it. Will you not show your faith by your works? Send something to India right off this minute. There are collections being taken up in your various churches. You can send the money to me if you wish; but that would be a roundabout way. We want it to get there as soon as possible. Here is something I have clipped from Sheldon's daily:

Five cents will save a life for a day.

One dollar will feed twenty men, women, and children for a day.

Five dollars will save a person's life until the rain comes in July, and the famine pressure is relieved.

Twenty-five dollars will furnish cheap garments for fifty women, or seventy-five blankets needed for protection against the cold.

Five dollars will rescue from starvation, and support fifty children for a month.

One hundred dollars will dig a well that will insure bountiful crops on several acres of land, and secure many families against future famines; or the same amount will equip a cheap grain-shop that would lower the market rate in a circle of many villages.

All contributions should be sent directly to Frank H. Wiggin, treasurer of the American Board, 14 Beacon Street, Boston, and should be marked for the Congregationalist's Relief Fund.

One thing more before I close. It grieves my heart to see the waste that is going on in our United States. In a recent daily a reporter interviewed the head waiter in a large restaurant. They served meals both on the European and American plan. He told the reporter they made more profit, although they received less money, from guests who ordered and paid for what they wanted and nothing more. He said those who paid for a full meal would almost always order every thing on the bill of fare, eat what they wanted, and all the rest of the nice expensive food was dumped into the slop-pail. And this goes on the world over. We are told a good meal can not be furnished for less than 50 or 75 cents or a dollar, because it is customary to throw away more than a customer eats. Not only is the food expensive, but high-priced cooks must be employed to get up expensive dishes just to throw the greater part of them away. I need not speak of the amount wasted, or worse than wasted, on drinks.

Last summer there were more people attending pleasure-resorts than ever before since the world began. I suppose one reason is they were all earning money; and then they made a study as to how best they might throw their money away. All these people have good and abundant meals at home; but in between meals they must have popcorn, ice-cream, lemonade, and may be beer. At the close of the day, after three good meals, banquets are the fashion at 75 cents or a dollar a plate; and in large cities they have \$5.00 a plate, \$10.00 a plate, and somebody who knows can tell me how much more. Think of all of this, and then think of the little girl who begged her *mother* to spare her life, promising she would never again, even if she was starving, ask that *mother* for a crumb of bread. No doubt this child was a pretty winning little girl, like yours or mine. Christ Jesus, and he alone, teaches us that we should stir ourselves for that little girl in starving India as we would were it a child of our own. "Thou shalt love thy neighbor as thyself;" and few would, at the present day, dare to tell us the starving people of India are *not* "our neighbors."

Why does God allow this? I think we may say truthfully we are a part of him. Why does he allow it? Why does the United States of America allow such a state of affairs? God has given us this great abundance in *order* that *we* might feed the world. Instead of feeding the world we are wasting it and throwing it away, making ourselves unwell by the great abundance we do not need. God expects us to compass the whole earth and hunt up the starving. We have been for years trying to get to the North Pole, and are at it yet. Let us use a little of that zeal in hunting up

the *starving* people and setting them at work. I do not believe in making paupers of men. God gives the means and commissions *us* to do the work he wants done. When soldiers and money were called for to go to Cuba, there was no lack. To those who are so patriotic, let me suggest it *may be* God's will that America shall *lead* the world in wealth and arts and progress in every direction. Now, before we are fit to lead the world let us first feed the world, or rather the starving people of the world.

If patriotic America is to *lead* the world, is it not a grand matter to start the work on a good foundation by letting patriotic America commence to *feed* the world? I need not tell you who it was that said, "Whosoever will be great among you, let him be your minister; and whosoever will be chief among you, let him be your servant."

SOME EXCELLENT SUGGESTIONS FROM OUR OLD FRIEND PROF. COOK ON CO-OPERATION.

Dear Mr. Root:—I have always admired your earnestness to benefit others, even though you received no personal consideration. It is certainly a thing to be coveted. I therefore am free to come to you now with an article which I think is very important and opportune at this time. We all know the magnitude of trusts at the present time; we all know the evil connected with them; we all know the unrest in the public mind because of these great combinations. Any such general disturbance is greatly to be regretted. On the other hand, close study makes it very certain that such combinations have much to recommend them. The economy which they permit is certainly greatly in their favor. The economy of production, the economy in advertising, economy in sale—indeed, economy everywhere—urges in favor of great combinations. Again, these great combinations make it possible to develop any art to its fullest extent. I think few will dispute the fact that some of our greatest improvements of late have come from combinations. An institution that has so much to recommend it when once thoroughly organized is very hard to remove. I doubt if we can ever do away with trusts. I do believe that, with better Christianity and better methods, the evils will disappear. We may be glad of the best combination if the evils are to be eliminated. Your great business gives you marked advantage over those who have a less trade, and manufacture less. This advantage would be even greater if *all* the bee supplies were produced and sold by you. I believe that, were this the case, you would not take advantage of your position to fleece the bee-keeping public. Not as much could be said of many people. I believe the best way to overcome these evils is to make combination general. I believe the solution will come in general co-operation. The leader of one of our labor unions recently said, "We make no fight against combinations if we can only be fully organized ourselves." I believe there is a wealth of philosophy in his remark. You and I know that our manual-labor pursuits have been seriously handicapped in all the past. The fact that manual-labor occupations have used less brains and culture is the great reason for this struggle in the economy of the world's work. The immediate cause of the handicap is the lack of co-operation. The farmers, including the bee-keepers, have suffered most. Their isolation makes combination much more difficult than in any other class of the world's workers. You and I also believe that there is more of integrity and wealth among our ranchers, as a whole, than among other classes. After any general election we are all eager to learn whether the country people turned out to vote. The very fact of labor and intimacy with God-made things, I believe, accounts for this moral superiority. I like Tennyson's beautiful stanza:

Flower in the crannied wall,
I pluck thee out of the cranny;
I hold you here in my hand, little flower;
And if I could but understand what you are,
Root and all, all in all,
I should know what God and man are.

The farmer mingles with these choice products right from God's own hand, and therefore is refined and made more Godlike. Is it not, then, most desirable that we use every effort to bring farmers together to create unity of action that they make use of the most potent lever that has helped to raise all other classes to the position of superior influence? I am so sure of this that I wish to lose no opportunity to urge all who have influence to work for this end. And thus I wish now to be-ech you to spare no opportunity in your able and widely read journal to push the importance of this matter before the people.

You probably know that California has marched to the front in this matter of co-operation among the producers. We believe that the Citrus Fruit Exchange, which controls hardly more than one-third of the products of the State, has been the saving of the citrus industry. We further believe that, when it becomes the controlling power, as it bids fair to be soon, it will be much more of a power for good. The Raisin Combine, of Central California, has saved the raisin industry; has made a business that was flat on its back one of the most desirable in the State; has cleared mortgages from many a vineyard, and has made a despondent people rejoice in thrift and the glad prospect of still better things. The deciduous-fruit exchange, though yet young, is rapidly bringing about a like state of things. We are now having a great combine formed including dried-fruit products of the entire State. The aim is to secure control of 75 per cent of the fruit of the State. It now looks as though the enterprise would succeed. If so, the prune industry, which is now languishing and almost breathless, will be brought again into the prosperity that it deserves. The Bee-keepers' Exchange has been unfortunate in that, since its origin, we have had almost no honey crop. With some good honey years we may hope much from this organization, especially if it is rightly managed. The reason why California comes to the front in this great undertaking is that she has an exceptionally cultured farming class. Many of our ranchers were large, successful business men of the East who came here to our beautiful sunny southland to regain lost health. That the gain might be more rapid, they became the owners of orchards; and with recovered health came the love for their work. I do not believe the world can show so bright a community of farmers of so much business tact and energy as are to be found in our beautiful southland of California. Thus it was easier here to inaugurate the combination movement. Men had experienced its benefits in other lines of business, and were eager to repeat the experience in their orchard management. It has occurred to me that the bee-keepers were exceptionally well informed. Do they not almost all take the journals? If they read generally, as I believe is true, then they think and know what forces are moving the world. Are they not, then, men who can be easily induced to come into this combination movement? If I can read the signs of the times, public ownership of all our public utilities is soon to become a fact. I expect to see the railroads, street-airways, express business, telegraphs, and telephones all under municipal or government control. I hope, likewise, to see the agriculture of our country thoroughly co-operative. I feel sure that, with it will dawn a brighter day, not only for our farming class but for our whole people; for with the prosperity of the farmer comes the prosperity of every other class.

Now, friend Root, will you not give this matter earnest heed, and urge all our bee-keepers to take hold of co-operation with a will?

You know, of course, what co-operation has done for the laboring classes of England. We certainly should not be behind our brothers of the island empire. In my judgment, only a few things are necessary to bring about this desired consummation. One is general enlightenment of the people. We need much of social mingling and culture which will banish the disposition to distrust now too common among our farming class. Secondly, a few examples like those referred to already, which shall show clearly that success comes with good management and will do much to hasten the good time. Certainly we need to take great pains that the business management in this co-operation movement shall be especially wise, intelligent, and honest. To get such management we must pay for it. We must persuade the people of this necessity, which may, perhaps, be one of the most difficult things of all. The railroads secure the very best business ability to manage their business. They pay well for this ability. We can do the same thing, and will as soon as we have fully informed ourselves as to what is for our best interest.

I hope, my dear friend, that you will give this matter earnest consideration, and then I am sure you will feel as enthusiastic in the matter as I do. You will see the good that is sure to come from it, and you will urge in season and out of season that all our people wake up in this matter, and that all our industrial classes shall unite in the fullest and wisest co-operation. A. J. Cook.

Claremont, Cal., Mar. 2.

Dear friend Cook, I heartily thank you for your very kind words in regard to my poor self; and I am glad to say to the friends that I have long felt just about what you outline in a way much better than I could put it myself. I am in position to know the power of many minds working in harmony, backed by the wealth of many persons. May God help us to make this new method of doing things a blessing to all humanity—as well to the poorest and humblest as to the wealthy. Like every thing else that is good, it must come through Christ Jesus, the great Master and the great Leader. May God help us to see that not only is true Christianity, but all *real* success and progress as well, dependent on harmony between labor and capital. One of our great troubles is laborers who are not *loyal* to the firm or organization that pays them their wages every Saturday night, and a *like* great trouble is that the employer or organization is not in a *like manner* loyal to those who do the work with brain and muscle. Once more, may God help us.

TEMPERANCE AND TEMPERANCE LEGISLATION IN OHIO.

Doubtless many of our readers know more or less about the Clark bill that recently passed the House of our State, but failed by just one vote of passing the Senate. When the Anti-saloon League was first started, we had the Haskell bill; later we tried what was called the Harris bill, making some progress each time; but the enemy managed, by means that the Anti-saloon League could not use, to defeat us every time. All three of these had one main object—to permit the voters of any town, or precinct of a large city, to decide by vote whether they want saloons in their town or neighborhood or not. After the Clark bill passed the House, the brewers and the Ohio Whisky League became almost frantic in their determination that the bill should not be passed. The *Wine and Spirit News* came out boldly in an appeal to the brewers and saloon-keepers something like this: "Gentlemen, if this bill is passed it will sweep out fully half of the saloons in Ohio." And then it urged and implored them to rally to the fight, and defeat a bill so damaging to their interests, by any sort of means, fair or foul. If you think I am putting it too strongly, see copies of the *Wine and Spirit News*. In fact, you can see enough of it in almost any one copy.

Let us now consider this thing a little. In our land of liberty we expect the majority to rule. The Liquor League says, however, that *the majority must not be permitted to rule*; for if it did, half the saloons in the State would be wiped out, and the damage to their industry would be tremendous. "No, sir, 'e.

No matter whether the people in a neighborhood, town, or county want saloons or not, they *must* have them. We claim the privilege of pushing our stuff right under the noses of the most respectable people. Even if there are, in some of our cities, localities where intelligent Christian people are gathered together with their schools and churches and Endeavor societies; no matter how much these people detest and hate the sight of a saloon, they have *got* to have it right in their midst. We claim the privilege of planting it there; and any attempt to give them a law that can drive us out must be thwarted and *killed*, no matter what the cost."

The Anti-saloon League and the good people of Ohio knew what was going on. We got our ministers, our teachers, our godly temperance (and temperate) lawyers to write letters, visit the senators personally, and bring every influence to bear that an honest and upright man *could* bring to bear, and we even succeeded in getting public and private promises from more than enough of the senators to support the Clark bill to make it a *sure* thing. At just the last minute, the bill was pushed through without giving any time for debate, and to our surprise and consternation three of the senators voted against it who had given the temperance people the promise I have mentioned. They succeeded by having just one vote more. These three men were obliged to admit their constituents back of them wanted temperance legislation; and none of them can give any consistent reason why they did not vote as they had pledged themselves to do.

By the way, is it wise, is it just as it ought to be, to permit one man (and that one not a good man) to have it in his power by a single word to curse our whole State of Ohio with saloons in, places where the resident people do not want them, and would not have them if there were any legal remedy? Our daily papers came out strongly and valiantly for temperance.* They presented the matter plainly and clearly again and again, and pointed out the unfair and absurd idea of permitting this business to be carried on where it is not wanted, just because the liquor-dealers could make "big money" by so doing. By the way, the *Wine and Spirit News* itself is the best evidence we have in the world of the hellish nature of the traffic they are engaged in. I wish temperance and Christian men and women throughout the land would make an effort to get hold of its pages and read them. It is sent out as a private journal, in the interests of the liquor-dealers. In this periodical they admit that money is what makes our laws, and with brazen assurance they call on the saloon-keepers and brewers to bring forward money—*more* money—or the industry will be killed by good people who do not want saloons in their neighbor-

hood. They admit we outnumber them by honest votes; but they recognize we can not be Christians and use money for bribes, and resort to like criminal ways of working to protect ourselves and enact righteous laws. What is going on here in Ohio is still going on in almost every State in the Union; and, sadder still, it is held up by the precept and example of even the very head of the United States government. Now, I am not advising that we should give up, and let things go as they are. See Home Paper in this issue.

THE NATIONAL, ANTI-SALOON LEAGUE.

I am sorry to say there are people, even Christian people and temperance people, who, for some reason I can not comprehend, are picking at the Anti-saloon League. Now, the very best testimony that the world can produce of what the Anti-saloon League is doing in the United States is found in the organs of the various whisky papers. The whisky men of Michigan have a periodical they name *Truth* (I have just been wondering if it is some relation to Francis Truth). Let me give you one extract from this *Truth* paper:

The Anti-saloon League's campaign for local option in several of the counties of the State, which the League considers hopeful, is now in earnest.

The liberal people of Michigan, liquor-dealers in particular, have no idea of the magnitude of this Anti-saloon League movement in Michigan. It has spread out over the State until nearly every city and town of any size has a local League affiliated with the State League, all pouring money into the pockets of State Superintendent John Brant and his agents.

These men, and there is a host of them, are traveling about the State constantly, creating discord, and they are slowly but surely winning their way to success, aided by the very liquor-dealers they seek to ruin.

As sure as the sun rises, Michigan liquor-dealers are going to see stormy times for the next two years, culminating in serious restrictive legislation and local option in half the counties of the State, if something isn't done by the liquor-interests to bring the trade up to a higher standard, where it can command more of public approval.

Do not imagine, because your county is not threatened at present that you have no interest in the battle in the counties where it is raging. Should the Anti-saloon League succeed in carrying one county for local option next spring, the influence would be felt in every county in the State. Religious frenzy would be aroused, fanatics encouraged, money would be poured into the coffers of this un-American league, and there would be an epidemic of local-option elections. The influence of such a victory would be felt at Lansing next winter, and the whole liquor trade of the State would be in danger.

I do not suppose anybody will undertake to say the whisky periodicals have exaggerated or overestimated the damage we are doing. I am pleased to tell you that Bro. Brant was one of the few present at our first meeting, and helped organize the Anti-saloon League of Ohio. This extract is only a sample of what may be found in the liquor periodicals all over the United States. Bro. Brant, let us congratulate you on the grand work you are doing. Be ye not weary, etc.

Humbugs and Swindles.

THE NATURAL-HEN INCUBATOR.

Mr. J. F. Seims, of Columbus, Neb., is getting a great lot of money (or at least he *says* he is, in his circulars) by selling a pamphlet

*I clip the following from a recent issue of the *New York Tribune*:

They will oppose any reform whatever.

They deny the right of the people to protect themselves at all.

They claim the right for themselves to poison and brutalize and degrade all whom they can reach.

of four pages (two leaves, mind you), for \$1.00. This pamphlet tells how to make the "natural-hen incubator," and contains just one engraving. I sent him a dollar; and if it were worth while I could give the whole contents of his pamphlet right here. The plan is to have 16 hens' nests for sitting hens. Each nest has a little yard 4 feet by 1, and the hen is to be confined to the nest and the little yard. At the further end of the yard are two tin cans. One contains corn and the other water. She goes out and gets food and drink, and then goes back to her nest. Now, this thing might work with some people; but I tried it years ago, and I decided the hen must have a bigger range for air and exercise. But suppose the thing *does* work according to his testimonials. In that case the inventor should furnish a fair-sized poultry-book for the dollar he gets (describing in *full detail* his invention), instead of a *single sheet of paper* that could be easily furnished for a quarter of a cent. I do not know what the Postoffice Department will have to say about taking a dollar for the printed matter on a single sheet; but I am going to submit the matter to them. Mr. S. tries to make out that he has some sort of "patent right" on this piece of paper, and that he can forbid anybody from showing it to his neighbors and letting them make a "natural-hen incubator" unless they also pay \$1.00. What *does* all people to make them part with their dollars so readily nowadays?

FRANCIS TRUTH, THE DIVINE HEALER.

For some time back, inquiries have come in in regard to Francis Truth. He is the chap who gives a picture of himself, with a benevolent priestly look on his face. He also quotes Scripture, even in his advertisements. He claims to perform modern miracles; and as an explanation of it he quotes words spoken of the Savior and applies them to himself, like the following: "How knoweth this man letters, having never learned?" Furthermore he says in great headlines, "There are now no incurable diseases," and adds, "Tell what your trouble is in a letter plainly written, and he will heal you free of charge." Of course I sent at once, and told him I wanted to be cured so I could eat all sorts of things as other people do. A printed circular (purporting to be a letter) informed me I would have to go to Boston and visit the office, to be cured free of charge. He said he could cure me at a distance without any mistake, but it was more trouble, and I would have to send him \$5.00 every month. A sort of magazine came from his establishment, giving pictures of his palatial residence, magnificent offices, as well as striking testimonials from people who had been cured. I thought once I could catch him by reporting him to the P. O. Department at Washington; but his magazine was in an envelope, and he pays book postage on it every month—that is, if it is really issued every month. I was perfectly satisfied the whole thing was another fraud, just about like the Weltmer fraud at Nevada, Mo. I did not believe his name was Francis Truth, and I did not believe there was

any *truth* about him or in any of the people whose pictures he shows in that magazine; and while deliberating as to what could be done with such chaps you may be sure I read the following, in a Cleveland daily, with interest:

FRANCIS "TRUTH," THE DIVINE HEALER.

BOSTON, MARCH 15.—E. B. Bemis, alias Francis Truth, famous as the "Divine Healer," was arrested here to-day by the local and Federal authorities together, charged with using the mails to defraud. The authorities claim that this is one of the most colossal frauds of the century, surpassing Miller's "Franklin Syndicate" and Parker's "three-star-ring good-luck box." In police headquarters is a small mountain of letters containing money which patrons have sent to him from all over the country.

The police declare to-night that Bemis has been making a net profit of \$35,000 a week for months. The Boston postoffice employed a special wagon to deliver the cartload of letters containing money to "Truth's" office several times a day.

The "healer" has been publishing two and three column advertisements in all the leading newspapers in New England for months, reciting his alleged miraculous cures. He charged a fee of \$5.00 for treatments which consisted solely of the "laying on of hands." The authorities claim that the testimonials of cures are written by his wife under various aliases, and this will be one of the principal pieces of evidence

IN THE PROSECUTION.

In the "Francis Truth Institute of Divine Healing," where Bemis was arrested, were twenty-eight typewriters, all busy answering the letters and correspondence, and conducting the "absent treatment" business at \$5.00 per treatment. An inspector disguised, hobbled into the "institute" on a pair of crutches, paid his \$5 and was "healed," and then the "healer" was arrested. Six thousand dollars was found in his mail for to-day alone.

Bemis also published a monthly magazine and several other books. He charged a fee of \$5 for joining the "institute."

A few weeks ago the police succeeded in securing the services of a man employed at the "institute," and were thus able to follow Bemis' doings day by day. To-day the final evidence was secured. The chief of the Boston Bureau of Criminal Investigation, with one of its inspectors, a United States deputy marshal, and six postoffice inspectors, went to the establishment at 5 o'clock this afternoon and captured their man. The rooms were sumptuously furnished with rich mahogany chairs and sideboards, and expensive paintings lined the walls. One room was full of

DISCARDED CRUTCHES.

Cartloads of mail matter, among which were letters containing \$5 bills, were seized. There were tons of printed matter and stereotyped letters in answer to applications for treatment, and scores of so-called testimonials. His letter of instruction to those taking his absent treatment directs the patient to "go into a closed and locked room alone, sit quietly in a rocking-chair, with folded hands and closed eyes, and listen to the music of the divine power of healing surging through their souls."

The twenty-eight girls who worked for Bemis in the "institute" declare that they knew all along that the scheme was "a gigantic swindle," and they say that some of the letters they were obliged to write were "the worst frauds ever perpetrated," but they were very well paid, so that they said nothing until the climax came.

Bemis is about forty years old, and a remarkably fine-looking man. He is held in jail without bail. Among his alleged testimonials are many from Ohio.

Now, in view of some of the experience I have had in the past few months, I expect some will write me that Truth (?) is an honest man, and persecuted for righteousness' sake. Others will say that he heals diseases, anyhow, and that he will soon get out of jail and go on with his business. Why, it fairly makes one blush for his fellow-man. The saddest part of it is, a great part of his victims come from our own State of Ohio. Almost every mail brings inquiries from some of our readers as to whether they had better send \$5.00 bills to this, that,

or the other "divine healer." No man but Christ Jesus himself ever healed *anybody* by the "absent" method. The whole thing is witchcraft of olden time revived; and the only possible explanation I can think of, as to why people should send money in sums going away up into the thousands to such impostors and charlatans is that Satan has broken loose in a new direction within the past few months. I do not know but people are getting money so easily in these days of plenty of employment and good wages that they do not know the value of it. But is it the *poor* people's money that supports in royal style these highway robbers—men who make it a great business to *rob the sick*? The 23 girls with typewriters did *all* the curing there was done. Bemis just sat in his mahogany chair and bossed things, he and his wife inventing a *new* batch of lies to send out every morning.

THE PEACH-TREE BORER.

This is the title of Bulletin No. 176, from Cornell University, Ithaca, N. Y.; and I would earnestly advise everybody to procure it who has been troubled with borers in fruit-trees. As the matter has been frequently discussed in our pages, I clip the final summing-up of the whole bulletin as follows:

In our four years of warfare against the peach-tree borer we have been thoroughly convinced that it is a difficult insect enemy to control. No method of fighting it has yet been devised by which the peach-grower can hope to get a single year's respite: the trees must be treated anew each year, and thus the warfare is a perpetual one.

The following substances injured or killed our trees, and are therefore classed as *dangerous*:

Paris green and glue, raupenleim, dento'lene, white paint, white paint and Paris green, printer's ink.

The following is a list of the things we found to be practically *ineffectual* or *useless*:

Wire cages, carbon bisulphide, asafetida and aloes, lime, salt, and sulphur, resin wash, hard soap, tallow, tansy, whale-oil soap, whitewash, lime and linseed oil, hydraulic cement wash, pine tar, Hale's wash (one application).

The following methods proved to be *quite effective*; that is, most of them kept out over one-half of the borers:

Hale's wash (two applications) kept out $\frac{1}{3}$ to $\frac{1}{2}$. Mounding kept out $\frac{1}{4}$ to $\frac{3}{4}$. Tarred paper kept out $\frac{1}{2}$ to $\frac{3}{4}$. Tobacco stems kept out $\frac{2}{3}$ to $\frac{3}{4}$. We would expect equally good results from the "digging-out" method applied under the conditions stated on page 9. Gas tar gave us the best results of any thing we tried.

We are especially pleased to see gas tar get such a good recommend, especially as one of our correspondents, Mr. B. F. Barr, on page 742, 1898, was so very positive that it would do the work, and would not injure the tree in any way whatever. In their directions for using gas tar, they state as follows:

We believe it will prove equally effective whether the borers are dug out or not, and from no other application yet devised would we expect to get such results when used independent of the "digging out" method.

THE BERMUDA PAPAYA (OR MELON) TREE.

I have a papaya-tree from your seed, over 3 ft. high. It will stand dry air and heat better than most plants. Clinton, Ill.

HENRY WILSON.

Well, friend W., I am glad to know that one person has succeeded. We had one last fall four feet high with leaves as large as a small parasol; but before I learned the trade of handling greenhouse stuff I worried it to

death. I am trying now to get a cutting of it in that cutting-bed, but I fear I shall not succeed.

SOMETHING MORE ABOUT THAT BIG CROP OF CARROTS; SEE PAGE 63.

Mr. Root :—I see you want to know more about the carrots. I do not know the name of the carrots. All that I know, it is the half-long carrot. I plant them between strawberries. There are five rows, and each row 55 ft. long. They were only kept clean of weeds; each row filled $2\frac{1}{2}$ bushels, except the last row, which filled 2 bushels. I figured if I planted the carrots by themselves a foot apart it would make about a square rod.

Last summer, a year ago, we had a patch of strawberries 25 by 55 ft. in size, and we got about ten bushels. They were Jessie and Haverland.

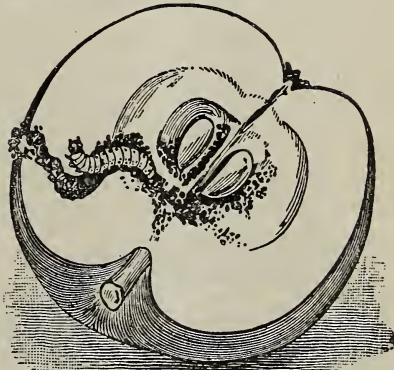
Peters, Mich., Feb. 26.

FRED A. HUND.

Your explanation, friend H., makes it very plain. The strawberries gave space between the carrots for sun and air; and, if I am correct, your crop of strawberries was a good deal smaller because of the tremendous crop of carrots between the rows. Of course, your statement was all right; but I think I might perhaps do the same thing on our ground in the way you have explained how you did it.

SPRAYING FRUIT-TREES.

The question of spraying fruit-trees to prevent the depredations of insect pests and fungus diseases is no longer an experiment but a necessity.



Our readers will do well to write Wm. Stahl, Quincy, Ill., and get his catalog describing twenty-one styles of spray outfits and full treatise on spraying the different fruit and vegetable crops, which contains much valuable information, and may be had for the asking.

WIDE AWAKE WOMEN

everywhere are furnishing their homes without money by distributing a few of our fine soaps, perfumes, extracts and toilet preparations, among their friends and neighbors.

No Money Needed

We send the goods and premiums on 30 days trial and guarantee them. This handsome white enameled iron bed with brass trimmings is only one of our many premiums. You can furnish your home without one cent.

Write for our handsome book of premiums. Watches, Cameras and Bicycles for boys and girls. Write us at once. Crofts & Reed, 842-850 Austin Av. Dep. H, Chicago, Ill.

In writing, mention Gleanings.

Burpee's "Seeds that Grow."

If you want to get the Best Seeds for your garden this year, you should send your address on a postal card for BURPEE'S FARM ANNUAL FOR 1900. It is a bright, new book, considered by intelligent planters everywhere "The Leading American Seed Catalogue." You had better write to-day. Simply address

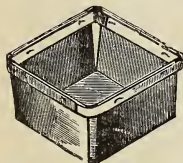
BURPEE, Philadelphia.

In writing, mention Gleanings.

FRUIT PACKAGES OF ALL KINDS.

— ALSO —

Bee-keepers' Supplies.



We allow a Liberal Discount on early orders. Why not send for your supplies now to save the discount and avoid the rush of the busy season? Catalog and price list free. Address

Berlin Fruitbox Co., Berlin Heights, Erie Co., O.

For Sale!

10,000 Erie blackberry-roots; 8000 blackcap tips, Palmer & Gregg; 30,000 Turner, most profitable red, brings \$4.50 to \$5.50 per bushel in Akron market; 5000 Cuthbert; 3000 Golden Queen; 40,000 strawberry-plants. No catalog.

L. B. PIERCE, TALLMADGE, OHIO.



GINSENG WE ARE HEADQUARTERS FOR Seed & Plants

All the latest instructions about it; its value; what used for and how to grow it. This valuable information FREE for a stamp. **AMERICAN GINSENG GARDENS, ROSE HILL, New York.**

REID'S

Fruit Trees, Small Fruits, Roses, Ornamental Trees and Plants true to name. Low prices. No. 1 stock. Illustrated catalog free. **REID'S NURSERIES, Box 18, Upland, Ohio.**

FRUITS

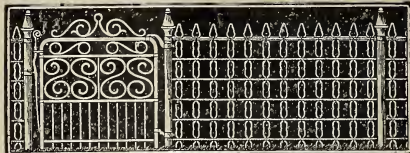
A New Business== Belgian Hares.

FANCY MICE FOR PETS.

A very profitable Winter Business for Bee-men. English and Mammoth Belgians. Stock, color, etc. by the standard. Stamp for facts and prices. If you are interested mark the address, as this adv't may not appear again I have over 100 Belgians, and buy and sell continually. **F. H. DEWEY, 35 Mech. St., Westfield, Mass.**

In writing, mention GLEANINGS.

HARTMAN STEEL ROD PICKET FENCE



fills completely all fence requisites as to beauty, utility and durability. Specially designed for lawns, parks, cemeteries, school grounds, &c. Looks best and is best when built with our steel posts. Illustrated catalog free. **HARTMAN MFG CO., BOX 80 ELLWOOD CITY, PA.**

Or Room 40, 309 Broadway, New York City.

In writing, mention Gleanings.

BICYCLES FOR EVERYBODY. NO MONEY IN ADVANCE.

Shipped direct to anyone and guaranteed as represented or money refunded. Save agents large profits and get a

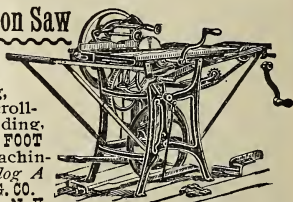
\$14.85 wheel at rock bottom wholesale price. Our **Arlington Model K** is the greatest bargain ever offered; in lots of one or more at **\$14.85**
\$35 "Arlington" **\$16.50**
\$40 " " **\$18.50**
\$50 "Oakwood" **\$21.50**

Good wheels **\$12.50, \$11.00 & \$10.00** Stripped Wheels **\$7.00** the Arlington & Oakwood are strictly high grade and the best that can be made. Thoroughly tested and fully guaranteed. Over 100,000 riders can testify to their superior quality, style, construction and workmanship. Illustrated catalog free. **CASH BUYERS' UNION, 162 W. Van Buren St., B-345, Chicago, Ills.**

In writing, mention GLEANINGS.

Union Combination Saw

For Ripping, Cross-cutting, Rabbiting, Mitering, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line FOOT and HAND POWER machinery. Send for catalog A **SENECA FALLS MFG. CO. 44 Water St., Seneca Falls, N. Y.**



In writing, mention Gleanings.

Pierce FARM Engines.

3-4 and 1 H. P. For Separators, Churns, etc., Stationary to 20 H. P. Pumping Engines all sizes. Send for circulars stating size and for what use. **PIERCE ENGINE CO., Box 17, Racine, Wis.**



In writing, mention Gleanings.

SEED SWEET POTATOES.

Select stock of the best of the old and new varieties. Descriptive circular and price list sent free. Refer by permission to The A. I. Root Company. Address

L. H. Mahan, Box 143, Terre Haute, Ind.

Special Notices by A. I. Root.

TOP OR ACORN ONION-SETS.

As we are sold out, and I have been obliged to purchase more, at a higher price, the price will be, hereafter, 15 cts. per quart (by mail 25 cts.); peck, \$1.00; bushel, \$3.50.

THERMOMETERS FOR DIFFERENT PURPOSES.

In addition to those mentioned in our last issue, p. 202, we can furnish a substantial incubator thermometer for 40 cts.; postpaid by mail, 50. A reliable dairy thermometer, all metal so it can be immersed in liquids without any rusting, 15 cts.; by mail, 20. Last and least, a miniature thermometer, 3 inches long, which will do very well for keeping the temperature of a cutting-bed, if your eyesight is good, for only 10 cts.; by mail, 13.

DR. DOWIE AND ZION'S TABERNACLE.

Two persons have complained that my severe censures of Dr. Dowie were uncalled for, and that he is innocent. In our last issue, page 231, where I say there is no need of explanations, I should have said there is no need of *more* explanations, meaning that he had explained the charges against him so many times after his fashion that the public did not need any more of that sort. Well, Dowie has again replied and explained, and sent out a most voluminous issue of his *Leaves of Healing* for the purpose. I have really spent more time in carefully examining it from beginning to end than I can afford. Now, even if he does prove conclusively that the men and women who expose him through *Ram's Horn* were bad and wicked like *himself*, does that make *his* case any better? The Bible from which he quotes so largely says, "When a man's ways please the Lord, he maketh even his enemies to be at peace with him." Now, Dowie is not at peace with his enemies by considerable; and his revelation shows that he is *very far* from being at peace with the members of his own household (altogether *too many* of them)—that is, calling Zion his household. As I censured him severely, I have given him a very careful hearing. My verdict is that he has not by any means answered the charges preferred against him.

ROOTED CUTTINGS.

Mr. S. T. Danley, of Macomb, Ill., whose address I gave in our last issue, writes me that, although he makes a specialty of shipping to florists, he will fill orders to anybody at his printed prices, no matter how small the order, and all plants will be delivered by mail or express free of charge. His price list will be mailed you on application. Why, it just makes my heart bound to think of getting rooted cuttings of these beautiful plants for only a cent or two apiece. Mr. Danley has a great list of verbenas for only *sixty cents* per 100; coleis, 70 cts.; petunias, \$1.25; geraniums, \$1.50, and soon, and they are safely delivered right at your home at these insignificant prices. I suppose I am giving him a big advertisement; but when I think of the great amount of pleasure and entertainment these little plants will give to the thousands of homes I feel it is no more than right that he should be encouraged. You see there is an advantage in these rooted cuttings over purchasing seeds, not only that you get flowers ever so much quicker, but you have the benefit of having the very best selected and *named* varieties. The golden-leaved salvia that I have said so much about he calls the "yellowbird;" but it is the same thing as Childs' golden-leaved; and the little plants are furnished at only 20 cts. a dozen, or \$1.00 per hundred! Why, I would not take a five-dollar bill for my golden-leaved salvia and its little family of cuttings that I have watched and fostered, and found much happiness with during the past winter—that is, if they could not be bought any cheaper than \$5.00 a plant. And, by the way, since I have become acquainted with the salvia, I can make it do just what I want it to do, better than almost any other plant in my collection. You must become *acquainted* with each plant, mind you. They do not behave all alike. I tried putting some pansies and violets in my forcing-bed, and handling them as I do the salvias; but they do not like so much heat. They rotted, and sent up white spindling shoots; but after I found out what they wanted, and put them in the coldest part of the greenhouse, where the pansies got a little frost on their leaves during a cold night, they were just suited. There may be some book that tells what plants are hardy and what are exotic, but I have not heard of it. I have been learning by experience. But the "tuish-un" is rather too "hi" sometimes.

The most gorgeous thing in all that little greenhouse is a Madame Van der Cruyssen azalia just now. Perhaps the next thing is a single petunia with more than a dozen large blooms on a single little plant. Just now, March 27, buds and blossoms are pushing out almost every hour. We have geraniums, almost all the colors of the rainbow, and no end of beautiful foliage plants. In the center bed of the greenhouse I have tried my hand at making an oval-shaped bed of salvias, acharanthes, coleis, heliotropes, etc. And, by the way, be sure to get an acharanthus to go with your coleis plants for a contrast. I just now noticed that our friend Danley says in his catalog, "We do not care where you live, we guarantee our rooted cuttings to reach you in good shape." That beautiful little plant, *Impatiens Sultana*, is advertised at 30 cts. per doz., or \$2.00 per 100, by S. M. Pike, St. Charles, Ill.

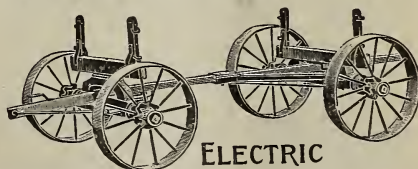
Friend Pike agrees with me in regard to what I said in the last issue about cuttings, as follows:

"A good strong rooted cutting will, if properly handled, start with more vigor, and make a much more satisfactory plant, than one that has been allowed to become root-bound in a small pot for a considerable length of time. If any of your readers would like to try some of the rooted cuttings I will mail them a list upon request. S. M. PIKE."

Now let me say to the readers of GLEANINGS in regard to ordering cuttings; These men whose names I have given are in the habit of filling orders for hundreds or thousands of plants; and where a small order for plants is received they can not afford to give it much time, and pay expenses. As a rule, I believe they do not even acknowledge the receipt of the money except by sending the cuttings; and sometimes you have to wait your turn, say several days. If you want them to reply as soon as they receive your stamps, inclose a postal card directed to yourself. They can then tell you the money is received, and when the goods will probably be sent, with just a few strokes of a pencil. I do not believe a wholesale florist usually wants to take time to read long letters or answer questions—that is, during the busy season. I judge this from some personal experience. If he consents to furnish you valuable plants for a cent apiece or less, the business must be done without waste of time and without having to refer the small order to the proprietor himself. One great objection to filling small orders at close prices is that it so often takes valuable time from a high-priced man. If you send an order that amounts to a good many dollars, then of course the proprietor might give it personal attention, and can give advice and make suggestions. I have mentioned this because I really hope every thing will be pleasant and satisfactory. I am glad to say that, with my experience in the flower business, I have had better plants, more of them, and *nicer* ones, than I had any reason to expect for the amount of money I sent.

Labor-Saving Conveniences.

Success on the farm to-day is largely proportioned to the saving of time and labor—which means economy of production—and not higher prices for farm products. Probably no single machine or appliance saves in the aggregate so much time and hard labor as the modern low-down handy wagon. Take for in-



ELECTRIC

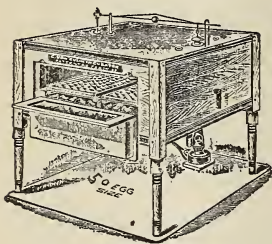
stance the loading and hauling of manure, ensilage corn, grain in the straw, corn fodder, hay, etc., all hard to load, the use and advantages of a low-down wagon are almost inestimable. The Electric Low-Down Handy Wagon excels for these purposes. Has the famous Electric steel wheels, is light, strong, and durable. Write Electric Wheel Co., Box 00, Quincy, Ill., for catalog.

Olive Oil. This oil is of fine quality, and guaranteed absolutely pure; try it. Extracted by myself. Case of 2 doz. bottles—2 gals.—\$10.00; case of 1 doz. bottles—2 gals.—\$9.50; case of two 1-gal. cans, \$8.50. All f. o. b. here. Sample on application, 15c. A. B. GURR, Merced, Cal.

DO YOU WANT TO MAKE SOME MONEY?

OUR PRIZE-WINNING White Leghorns, Barred and Buff Plymouth Rocks, Buff Cochins are money-makers. Utility and fancy combined. Friends, they will help to lift that mortgage. One thousand fine birds for sale at reasonable prices. Satisfaction guaranteed. Catalog free.

CRESCENT FARM, : BOX W, KENT, OHIO.
E. T. BLOOD, MANAGER.



A PERFECT INCUBATOR

That is what every one says of the **New C. Von Culin Incubator** (and Brooder). It has all the latest improvements which have been found of any merit. Will Hatch Every Hatchable Egg. Self-regulating, safe, sure. Send for illustrated catalog and price list of Incubators, Brooders, etc., free. Poultryman's Plans and catalog, 10 cts. Address

THE W. T. FALCONER MFG. CO.,
Box M. Jamestown, N. Y.

In writing advertisers, please mention GLEANINGS.



Complete Poultry Success

depends upon nothing so much as successful hatching. Successful hatching depends in turn upon the quality and reliability of an incubator. Our **SURE HATCH INCUBATORS** are a complete success. Hundreds in use. They hatch every egg that can be hatched in any way. Entirely automatic. They are the only machines made that do not at times overheat the center of egg chamber and chill edges. Nursery under egg chamber for chicks. Our Common Sense Brooders are equally superior. Catalogue free—not sold. Full of practical ideas.



SURE HATCH INCUBATOR CO., Clay Center, Nebraska.

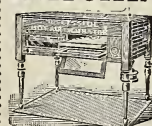
In writing, advertisers mention Gleanings.



INCUBATORS THE CYPHERS. OUR BEST.

Warranted to last Ten Years without repairs and to out-hatch during three trials any other incubator—bar none: **THIS OR YOUR MONEY BACK.** Built for business—sold on honor. 16-page illustrated circular and price list **FREE.** Poultry Manual and Catalogue No. 74 (160-pages, 8x11in.) entitled, "How to make money with Poultry and Incubators" sent postpaid for 15 cts. in stamps—worth dollars. Address nearest office.
CYPHERS INCUBATOR CO.,
Chicago, Ill. Wayland, N. Y. Boston, Mass.

HATCHING IN 10 DAYS



would be an improvement on the old way but WE can't do it. We CAN furnish an **INCUBATOR** that will hatch all hatchable eggs, and do it with less attention than any machine made. It does it because it is made right and has all late improvements. Sold at a low price and guaranteed. Catalogue in 5 languages, 6 cts.

DES MOINES INCUBATOR CO., Box 503 Des Moines, Ia.



HATCH CHICKENS BY STEAM—with the simple, perfect, self-regulating EXCELSIOR INCUBATOR

Thousands in successful operation. Lowest priced 1st-class hatcher made.
GEO. H. STAHL,
114 to 122 S. 6th St., Quincy, Ill.

Circulars free. Send 6c. for illus. Catalog

BUFF PLYMOUTH ROCKS!

Best farmer's fowl; large size; mature early; yellow skin; no pin-feathers to show; great layers; **PRIZE-WINNERS.**

BLACK MINORCAS.

Large size; layers of large eggs; are **PRIZE WINNERS.** Prices reasonable for eggs and stock.

Robert Mairer, : : : Akron, Ohio.

In writing, mention Gleanings.

American Poultry Journal.

25¢ 1 Yr.'s Trial Subscription 25¢

AMERICAN POULTRY JOURNAL,
—Room 500—
325 DEARBORN STREET, CHICAGO.

Barred and White Plymouth Rocks, Light Brahmas, single-comb White, Brown, and Buff Leghorns; rose-comb Brown Leghorns; Silver-laced and White Wyandots, Partridge Cochins, Single and Rose Comb Black Minorcas, S. S. Hamburgs, and Pekin Ducks. Eggs, \$1.00 for 15. Circulars and recommendations free.

Chas. H. Rue, Minerva, Ohio.

Eggs for Hatching.